
Meridian 1

Equipment identification

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Revision history

April 2000

Standard 17.00. This is a global document and is up-issued for X11 Release 25.0x. Document changes include removal of: redundant content; references to equipment types except Options 11C, 51C, 61C, and 81C; and references to previous software releases.

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An updated index was not available at the time of publication and therefore, the index included herein does not contain references to international items. This deficiency will be corrected in the next standard edition of this document.

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Contents

About this document	23
General information	25
Content list	25
Reference list	25
Feature description	26
Equipment requirements	26
Application module equipment	26
Conversion and expansion packages	26
Systems and generics	26
Equipment availability	28
Special features	28
Electromagnetic interference	28
Software packages	28
System Modules	29
Content list	29
Reference list	29
Feature description	29
NT5D21 Core/Network Module	30
NT8D35 Network Module	32
NT8D37 Intelligent Peripheral Equipment Module	33
NT8D49 Column Spacer Kit	34

Card cage assemblies	35
Pedestal and components	36
Top cap	36
Power and cooling equipment	37
Content list	37
Reference list	38
A0321130 Fan Unit	38
A0355200 Power Failure Transfer Unit	39
A0367916 Power Supply –48V	39
MFA150 Modular Power System	39
MPP600 Modular Power Plant	40
NT6D40 PE Power Supply DC	41
NT6D41 CE Power Supply DC	41
NT6D42 Ringing Generator DC	41
NT7D67CB Power Distribution Unit DC	42
NT8D06AB PE Power Supply AC	42
NT8D21 Ringing Generator AC	42
NT8D22 System Monitor	43
NT8D29AB CE Power Supply AC	43
NT8D46AC Thermostat Harness	43
NT8D46AM Air Probe Harness AC	44
NT8D46DC Air Probe Harness DC	44
NT8D52AB Pedestal Blower Unit AC	44
NT8D52DD Pedestal Blower Unit DC	44
NT8D53CA Power Distribution Unit AC	45
NT8D53AD Power Distribution Unit	45
NT8D56AA CE Module Power Distribution Unit	45
NT8D56AC CE/PE Module Power Distribution Unit	45
NT8D57AA PE Module Power Distribution Unit	46

QBL12 Battery Distribution Box	46
QBL15 Power Distribution Box	46
Common equipment cards	47
Content list	47
Reference list	48
NT1P61 Fibre Superloop Network Card	48
NT1P63 Fibre Electro-optical Interface packet	48
NT5D03 Call Processor Card	49
NT5D10 Call Processor Card	50
NT5D12AA Dual DTI/PRI (DDP) Card	51
NT5D61 Input/Output Disk Unit with CD-ROM (IODU/C)	51
NT6D65 Core to Network Interface Card	52
NT6D73 Multipurpose ISDN Signaling Processor	54
NT6D80 Multipurpose Serial Data Link Card	55
NT7R51 Local Carrier Interface Card	55
NT8D04 Superloop Network Card	56
NT8D17 Conference/TDS Card	56
NT8D18 Network/DTR Card	57
NT8D41BA Quad Density Serial Data Interface	57
NT8D72 Primary Rate Interface 2 Mbps	58
NTRB33 Fiber Junctor Interface (FIJI) Card	58
NTRB34 Core Network Interface 3 (CNI-3) Card	59
NTRE39 Optical Cable Management Card (OCMC)	59
QPC43 Peripheral Signaling Card	60
QPC414 Network Card	60
QPC441 Three-Port Extender Card	60
QPC471 Clock Controller Card	61
QPC720 Primary Rate Interface Card	61
QPC775 Clock Controller	62

QPC841 Four-Port Serial Data Interface Card	62
Peripheral equipment cards	63
Content list	63
Reference list	68
NT1P62 Fibre Peripheral Controller Card	69
NT1R20 OPS Analog Line Card	69
NT5D11AA Line side T1 Line Card	69
NT5D14AA Line side T1 Line Card	70
NT5D51 Meridian Integrated Conference Bridge (MICB)	70
NT5D60AA CLASS Modem Card (XCMC)	72
NT5G11 Meridian Integrated Call Assistant (MICA) Card	72
NT5K02 Flexible Analog Line Card	73
NT5K02AB Flexible Analog Line Card (Australia)	74
NT5K02DA Flexible Analog Line Card (France)	75
NT5K02JA Flexible Analog Line Card (Denmark)	76
NT5K02KA Flexible Analog Line Card (Holland)	76
NT5K02LB Flexible Analog Line Card (New Zealand)	77
NT5K02MA Flexible Analog Line Card (Norway)	78
NT5K02NB Flexible Analog Line Card (Sweden)	78
NT5K02SA Flexible Analog Line Card (Spain)	79
NT5K07 Universal Trunk Card (Hong Kong)	80
NT5K09 Quad DTMF Receiver	82
NT5K10 Enhanced Dual Loop Peripheral Buffer	82
NT5K17 Direct Dial Inward (DDI) Trunk Card (UK)	83
NT5K17BA DDI Trunk Card (New Zealand)	83
NT5K18 Flexible Central Office Trunk Card (UK)	84
NT5K18BA Central Office Trunk Card (New Zealand)	85
NT5K19 Flexible E&M Trunk Card (UK)	86
NT5K19BA E&M Tie Trunk Card (New Zealand)	86

NT5K20 Extended Tone Detector (UK)	88
NT5K21AA Extended Multifrequency Compelled Sender/Receiver (XMFC/XMFE)	88
NT5K36AA DID/DOD Trunk Card (Germany)	89
NT5K36AB DID/DOD Trunk Card (Austria/Germany)	89
NT5K48 Tone Detector Card (Global)	90
NT5K48BA Tone Detector Card (Denmark)	91
NT5K48DA Tone Detector Card (Norway)	92
NT5K50AA E&M Tie Trunk Card (France)	92
NT5K70AA Central Office Trunk Card (Finland/Germany)	94
NT5K70AB Central Office Trunk Card (Austria/Finland/Germany)	94
NT5K71AA Central Office Trunk Card (Germany)	95
NT5K71AB Central Office Trunk Card (Austria/Germany)	96
NT5K72AA E&M Tie Trunk Card (Austria/Finland/Germany)	97
NT5K82AA Central Office Trunk Card (Switzerland)	98
NT5K82BA/CA Central Office Trunk Card (Australia)	99
NT5K82HA Central Office Trunk Card (Belgium)	100
NT5K83AA E&M Tie Trunk Card (Spain/Switzerland)	101
NT5K83BA E&M Tie Trunk Card (Denmark)	102
NT5K83CA E&M Tie Trunk Card (Norway)	103
NT5K83DA E&M Tie Trunk Card (Holland)	104
NT5K83EA E&M Tie Trunk Card (Australia)	106
NT5K83FA E&M Tie Trunk Card (Sweden)	107
NT5K83GA E&M Tie Trunk Card (Italy)	108
NT5K83HA E&M Tie Trunk Card (Belgium)	109
NT5K84AA Direct Inward Dial (DID) Trunk Card (Switzerland)	111
NT5K84BA Direct Dial Inward (DDI) Trunk Card (Australia)	112
NT5K84HA Direct Inward Dial (DID) Trunk Card (Belgium)	113
NT5K90AA Central Office Trunk Card (Denmark)	114
NT5K90BA Central Office Trunk Card (Denmark)	114

NT5K92AA Direct Inward Dial Auto Answer Circuit (DID Tester) (Austria/France/Germany/Switzerland)	115
NT5K93AA Central Office Trunk Card (Norway)	115
NT5K93BA Central Office Trunk Card (Norway)	116
NT5K96JA Flexible Analog Line Card (Denmark)	117
NT5K96KA Flexible Analog Line Card (Holland)	117
NT5K96MA Flexible Analog Line Card (Norway)	117
NT5K96NB Flexible Analog Line Card (Sweden)	117
NT5K96SA Flexible Analog Line Card (Spain)	118
NT5K99AA/BA Central Office Trunk Card (Spain)	118
NT6D70BA S/T Interface Line Card (SILC)	119
NT6D71 U Interface Line Card (UILC)	120
NT6D72 Basic Rate Concentrator Signaling Card	121
NT7D16 Data Access Card	121
NT7R52 Remote Carrier Interface Card	121
NT8D01 Controller Card	122
NT8D01AC Controller-4 Card	122
NT8D01AD Controller-2 Card	123
NT8D02 Digital Line Card	123
NT8D03 Analog Line Card	124
NT8D09 Analog Message Waiting Line Card	124
NT8D14 Universal Trunk Card	125
NT8D15 E&M Trunk Card	126
NT8D16 Digitone Receiver Card	127
NT9C14AA CO/FX/WATS Trunk Card	127
NTAG03AA Central Office Trunk Card (Holland)	128
NTAG04AA Central Office/Direct Inward Dial Trunk Card (Holland)	129
NTAG26 Enhanced Multi-frequency Receiver	130
NTAG36 Meridian Integrated RAN (MIRAN)	130
NTBX80AA ISDN Network Termination Unit (NT1)	132

NTBX84AA/BA Rack mount NT1 Card—Basic/Enhanced	132
NTCK16 Generic Central Office Trunk Card	133
NTCK18AA Central Office Trunk Card (Italy)	135
NTCK22AA Direct Inward Dial Trunk Card (Italy)	136
NTCK90 Companion Meridian 1 Controller Card	137
NTCK91 Companion Meridian 1 Radio Card	137
NTCK93 Companion Meridian 1 Line Card	137
NTCW80 Meridian Integrated IP Telephony Gateway (ITG) Card . .	138
QPC71 E&M/DX/Paging Trunk Card	139
QPC250 Release Link Trunk Card	139
Meridian 1QPC297 Attendant Console Monitor Card	140
QPC311 Data Line Card	140
QPC327 MFC Sender/Receiver Card	140
QPC341 Data Line Card	140
QPC343 Ground Button Recall Line Card	140
QPC353 Modem Pool Line Card	141
QPC354 Modem Pool Line Card	141
QPC390 Pulsed E&M Trunk Card	141
QPC391 Pulsed E&M Trunk Card	141
QPC397 MCDS Asynchronous Card	141
QPC422 Tone Detector Card	141
QPC430 Asynchronous Interface Line Card	142
QPC432 4-Port Data Line Card	142
QPC449 Loop Signaling Trunk Card	143
QPC450 CO/FX/WATS Trunk Card	143
QPC451 SL-1 Set Line Card	144
QPC494 500/2500 Line Card (Message Waiting)	144
QPC512 Personal Computer Interface Card	145
QPC520 SL-1 Line Card	145
QPC521 500/2500 Line Card	146

QPC525 CO/FX/WATS Trunk Card with PPM	146
QPC526 CO/FX/WATS Trunk Card with PPM	146
QPC527 CO/FX/WATS Trunk Card	146
QPC528 CO/FX/WATS Trunk Card	147
QPC532 Ground Button Recall Line Card	147
QPC540 Dial Tone Detector	147
QPC550 DID Trunk Card	147
QPC551 Radio Paging Trunk Card	148
QPC558 Message Waiting Line Card	148
QPC559 Loop Signaling Trunk Card	148
QPC560 Loop Signaling Trunk Card	148
QPC574 Digitone Receiver	148
QPC577 Digitone Receiver Daughterboard (μ -Law)	149
QPC578 Integrated Services Digital Line Card	149
QPC594 500/2500 Line Card	149
QPC595 Digitone Receiver	150
QPC596 Digitone Receiver Daughterboard (A-Law)	150
QPC650 Music Trunk Card (μ -Law)	151
QPC651 Music Trunk card (A-Law)	151
QPC659 Dual Loop Peripheral Buffer Card	151
Station equipment	153
Content list	153
Reference list	153
M2000 Series Meridian Digital Telephones	154
M2250 Attendant Consoles	156
500/2500 telephones	156
C3050 and C3060 Portable Handsets	156
Companion base station	157
M7310 Companion administration terminal	158

QMT11 Asynchronous/Synchronous Interface Module	158
QMT12 Add-on Data Module	158
NT1F09 Asynchronous data option	159
NE-G3QDRNC Attendant Handset Assembly	159
NT3G30 Console Adjustable Stand	159
NT3G40 Console Graphics Module/Busy Lamp Field	160
NT2K69 Meridian Communications Adapter	160
Cables	161
Content list	161
Reference list	168
A0601464 Nullmodem Maintenance Cable	169
A0634495 Local Fiber Remote Multi-IPE Cable Superloop	169
A0634496 Remote Fiber Remote Multi-IPE Cable Superloop	170
A0634497 Fiber Remote Multi-IPE Maintenance Interface Cable	170
A0660711 25DB Adapter Cable	170
NE-A18Q Connector Cable	170
NE-A25 Connector Cable	171
NE-A25Q Connector Cable	172
NPS50843-7L01 Interboard Faceplate Cable Harness	172
NPS50843-7L02 Bypass Faceplate Cable Harness	172
NPS90781-20L01 CMRC Maintenance Cable	173
NPS90781-20L02 CMLC Maintenance Cable	173
NT1P64AA Fibre Optic Patchcord	173
NT1P75AA Fibre Optic Patchcord	173
NT1P76AA Fibre Superloop Network Card to I/O Panel Cable	173
NT1P78AA Fibre Peripheral Controller Card to I/O Panel Cable	174
NT1P85AA External Alarm Cable	174
NT1R04 Clock Controller to I/O Panel Cable	174
NT1R05 Intercabinet Clock Reference Cable	174

NT2K2AA Null Modem Cable	175
NT2K91AA RS-232 Cable	175
NT5D16AA Meridian 1 Trunk Tip/Ring Cable	175
NT5D17AA Meridian 1 Trunk Tip/Ring Cable	175
NT5D19AA Maintenance cable	176
NT5D50AA DBX Ribbon Cable	176
NT5K53AA Cable Assembly (UK only)	176
NT5K54AA Cable Assembly (UK only)	176
NT5K63AA Cable Assembly (UK only)	177
NT5K64AA Cable Assembly (UK only)	177
NT5K65AA Cable Assembly (UK only)	177
NT5K66AA Cable Assembly (UK only)	178
NT5K79AA Cable Assembly (UK only)	178
NT5K80AA Cable Assembly (UK only)	178
NT5K81AA Cable Assembly (UK only)	179
NT5K1104 MDF to EEPE Cable	179
NT5K1109 Module to Module Power Harness	179
NT5K1110 Intracabinet Network Cable	179
NT6D54 Field Wiring Kit	179
NT7D11 Module to Module Power Harness	180
NT7D67DA Local External Maintenance Cable Assembly	180
NT7D68AA Remote Carrier/Alarm Cable Assembly	180
NT7D68BA Remote Maintenance Cable Assembly	180
NT7D68CA Remote Carrier/Alarm Cable Assembly to Small Cabinet	180
NT7D68DA Remote Maintenance Cable Assembly to Small Cabinet	181
NT7D68EA Coaxial Interface Adapter Cable	181
NT7D69AA Extension Local Carrier Cable Assembly	181
NT7D69BA Extension Local Maintenance Cable Assembly	181

NT7D89 CP to I/O Panel RS-232 Cable	181
NT7D90 CP to I/O Panel Ethernet Cable	182
NT7R67AA Local Maintenance Cable Assembly	182
NT7R67BA Local Carrier/Monitor Cable Assembly	182
NT7R67CA Local Maintenance/Clock Cable Assembly	182
NT7R67EA Coaxial Interface Adapter Cable	182
NT8D40AA AC Power Cord	183
NT8D40AM Module to Module Power Harness	183
NT8D40AY AC Power Cord	183
NT8D40BJ System Monitor to Backplane Cable	183
NT8D40BK System Monitor Trip Cable	183
NT8D46AA System Monitor Column Cable	183
NT8D46AC Thermostat Harness	183
NT8D46AD System Monitor to SDI Cable	184
NT8D46AG System Monitor to SDI Paddleboard Cable	184
NT8D46AH System Monitor to MDF Cable	184
NT8D46AJ System Monitor to UPS (Best) Cable	184
NT8D46AL System Monitor Serial Link Cable	184
NT8D46AM Air Probe Harness AC	184
NT8D46AP System Monitor Serial Link Cable	185
NT8D46AQ System Monitor to UPS (Exide) Cable	185
NT8D46AS System Monitor Inter-CPU Cable	185
NT8D46AT System Monitor to QBL15 Cable	185
NT8D46AU System Monitor to UPS (Alpha) Cable	185
NT8D46AV System Monitor to Power Cabinet Cable	186
NT8D46AW System Monitor to QBL12 Cable	186
NT8D46BH System Monitor to MDF Cable	186
NT8D46BV System Monitor to Power Cabinet Cable	186
NT8D46CC System Monitor to Power Supply PCB Cable	186
NT8D46CV System Monitor to Power Cabinet Cable	186

NT8D46DC Air Probe Harness DC	187
NT8D73 Intercabinet Network Cable	187
NT8D74 Clock Controller to Junctor Cable	187
NT8D75 Clock Controller to Clock Controller Cable	188
NT8D76 IGS to InterGroup Module Cable	188
NT8D77 FDI to FDU Cable	188
NT8D78 CPU Cable	189
NT8D79 PRI/DTI to Clock Controller Cable	189
NT8D80 CPU Interface Cable	189
NT8D81 Tip and Ring Cable	190
NT8D82 SDI to I/O Cable	191
NT8D83 PRI/DTI to I/O Cable	191
NT8D84AA SDI Paddleboard to I/O Cable	191
NT8D84BA System Monitor to I/O Cable	191
NT8D85 Network to PE Cable	192
NT8D86 Network to I/O Cable	193
NT8D87 Conference/TDS to Music Trunk Cable	193
NT8D88 Network to I/O Cable	193
NT8D90AF SDI Multiple-Port Cable	193
NT8D91 Network to Controller Cable	194
NT8D92AB Controller to I/O Cable	194
NT8D93 SDI Paddleboard I/O to DTE/DCE Cable	194
NT8D95 SDI I/O to DTE/DCE Cable	195
NT8D96AB SDI Multiport Cable	195
NT8D97AX PRI/DTI I/O to MDF Cable	195
NT8D98 Intercabinet Network Cable	196
NT8D99 CPU to Network Cable	196
NT9D47 EMSI to SMDU Data Cable	196
NT9D66 EMSI to SMDU Power Cable	197
NT9D89 EMSI to MDU Data Cable	197

NT9J93AD PRI/DTI Echo Canceler to I/O Cable	197
NT9J94AB RPE to I/O Cable	197
NT9J96 Intracabinet Network Cable	198
NT9J97 Intracabinet Network Cable	198
NT9J98 Intracabinet Network Cable	198
NT9J99 Intracabinet Network Cable	199
NTAG01AA Cable Assembly (UK only)	199
NTAG02AA Cable Assembly (UK only)	199
NTAG81AA Audio Cable	199
NTAG81BA Maintenance Extender Cable	200
NTAG81CA PC Maintenance Cable	200
NTAG81DA VLAN Maintenance Cable	200
NTAK410 Carrier Remote DC Power Cable	200
NTAK1204 Carrier Remote Inter-cabinet Cable	200
NTCG03 Reference Clock Cable	201
NTCK46 External DCHI Cable	201
NTCK80 External MSDL Cable	202
NTND11 CP to CP Cable	202
NTND13 IOP to IOP SCSI Cable	202
NTND14 CNI to 3PE Cable	203
NTND26 MSDL DCHI Interface Cable	203
NTND27AB MSDL to I/O Panel Cable	203
NTND28 Intercabinet Cable	204
NTND33 Core Module Upgrade Kit	204
NTND33CA Network Expansion Kit	204
NTND37 Dual SDI Cable	205
NTND94 CNI to I/O Panel Cable	205
NTND95 3PE to Connector Housing Cable	205
NTRC46 Clock to FIJI Cable	205
NTRC47 FIJI to FIJI Sync Cable	206

NTRC48 Fiber Ring Cable	206
NTRC49 Clock to Clock Cable	206
P0704007 Superloop Adapter Plate	207
P0715058 Universal I/O Panel	207
QCA328AD Connector Cable	207
QCAD36A and QCAD37A Terminal Connector Cables	207
QCAD38A Connector Cable	208
QCAD40 Connector Cable	208
QCAD42 Connector Cable	208
QCAD110 Connector Cable	208
QCAD115 Connector Cable	208
QCAD116 Connector Cable	208
QCAD117 Connector Cable	209
QCAD118 Connector Cable	209
QCAD119 Connector Cable	209
QCAD120 Connector Cable	209
QCAD121 Connector Cable	209
QCAD122 Connector Cable	209
QCAD123 Connector Cable	210
QCAD124 Connector Cable	210
QCAD125 Connector Cable	210
QCAD126 Connector Cable	211
QCAD128 Connector Cable	211
QCAD129 Connector Cable	211
QCAD130 Connector Cable	211
QCAD133 PRI/DTI I/O to MDF Cable	211
QCAD172 Connector Cable	211
QCAD209 Connector Cable	212
QCAD253 Connector Cable	212
QCAD273 Power Connector Cable	212

QCAD274 Power Connector Cable	212
QCAD274A AC Power Cord	212
QCAD275 Power Connector Cable	212
QCAD276 Power Connector Cable	212
QCAD277 Power Connector Cable	212
QCAD278 Power Connector Cable	212
QCAD279 Power Connector Cable	212
QCAD281 Connector Cable	213
QCAD282 Connector Cable	213
QCAD283 Power Connector Cable	213
QCAD287 Power Connector Cable	213
QCAD291 Connector Cable	213
QCAD293 Network Loop Connector Cable	213
QCAD294 P10 Cable	213
QCAD299 RPE Power Adapter Cable	214
QCAD300 RPE Power Adapter Cable	214
QCAD306 Power Adapter Cable	214
QCAD308 PE Cable Assembly	214
QCAD309 Alarm Adapter Cable	214
QCAD310 Ground Cable	214
QCAD311 Intracabinet Network Cable	215
QCAD312 Intercabinet Network Cable	215
QCAD313 PE Cable Assembly	215
QCAD320 Connector Cable	215
QCAD321 Power Adapter Cable	215
QCAD328 PRI to DCHI Cable	216
QCAD332/333 3-Port SDI Cables	216
QCB6 Tape Unit Connector Cable	216
QCB12/13 Connector Cable	216
Interface cables	216

Miscellaneous equipment	219
Content list	219
A0345353 A/B-Switch	220
A0377992 Black Box ABCDE-Switch	220
A0638930 UDS FastTalk v.32/42b	220
A0601396 Nullmodem	220
A0601397 Nullmodem	220
A0633651 40MB PCMCIA Flash Card	221
A0773056, A0773059, A0773054, A0773055, A0634492, A0634493 Fiber Remote Multi-IPE	221
A0634494 Fiber Remote Multi-IPE Rack Mount Shelf Option	221
A0660403 3MB PCMCIA Flash Card	222
NT5D52AA Ethernet Adapter card	222
NT5D62 PCMCIA Hard Drive card	222
NT7D0902 Rear Mount Conduit Kit	222
NT7R94AA Bracket for Small Cabinet I/O Panel Assembly	222
NT8D63 Overhead Cable Tray Kit	223
NT8D1107 Superloop Adapter Plate	223
P0745716 Universal I/O Panel	223
P0741489 Backplane Cable Extraction Tool	223
NT7D05 and NT8D31 Blank faceplates	224
NT8D64 Earthquake bracing kit	224
List of terms	225
Index	231

About this document

This document is a global document. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described is supported in your area.

This document identifies equipment that can be ordered and used with Meridian 1 system Options 51C, 61C, and 81C. As appropriate, the purpose, quantity required, and system compatibility is given. The equipment listed in this document is available in the USA and internationally.

See the Meridian 1 Planning and Engineering Guide for:

- *System Overview* (553-3001-100)
- *Installation Planning* (553-3001-120)
- *System Engineering* (553-3001-151)
- *Power Engineering* (553-3001-152)
- *Spares Planning* (553-3001-153)

See the Meridian 1 Installation and Maintenance Guide for:

- *System Installation Procedures* (553-3001-210)
- *Circuit Card: Installation and Testing* (553-3001-211)
- *Telephone and Attendant Console: Installation* (553-3001-215)
- *General Maintenance Information* (553-3001-500)
- *Fault Clearing* (553-3001-510)
- *Hardware Replacement* (553-3001-520)

See the X11 software guide for an overview of software architecture, procedures for software installation and management, and a detailed description of all X11 features and services. This information is contained in two documents:

- *X11 System Management* (553-3001-300)
- *X11 Features and Services* (553-3001-306)

See the *X11 Administration* (553-3001-311) for a description of all administration and maintenance programs, and the *X11 System Messages Guide* (553-3001-411) for information about system messages.

General information

Content list

The following are the topics in this section:

- [Reference list 25](#)
- [Feature description 26](#)
- [Equipment requirements 26](#)
- [Application module equipment 26](#)
- [Conversion and expansion packages 26](#)
- [Systems and generics 26](#)
- [Equipment availability 28](#)
- [Special features 28](#)
- [Electromagnetic interference 28](#)
- [Software packages 28](#)

Reference list

The following are the references in this section:

- *System Engineering* (553-3001-151)
- *Power Engineering* (553-3001-152)
- *Upgrade System Installation* (553-3001-258)
- *X11 Features and Services* (553-3001-306)

Feature description

This document identifies equipment of the Meridian 1 Integrated Services Network that can be ordered individually. The items are described in terms of purpose, quantity required, system hardware (system type), and software generic compatibility, as appropriate.

Equipment requirements

The system option that best meets individual requirements is determined by the following factors:

- number and type of terminal devices required
- number and type of trunks required
- traffic requirements for lines, trunks, and consoles
- special features required
- growth forecast in terms of ports and features

Refer to *System Engineering* (553-3001-151) and *Power Engineering* (553-3001-152) for guidelines on system requirements. Consult your Nortel Networks representative and use a configuration tool, such as Autoquote or Meridian Configurator, to fully engineer a system.

Application module equipment

For information on application module equipment (for example, the application modules, circuit cards, and cables used for Meridian Link), see the specific documentation for the application.

Conversion and expansion packages

Software conversion packages and hardware upgrade packages are available to expand system capabilities. For information on these packages and procedures for performing conversions and upgrades, see the *Upgrade System Installation* (553-3001-258).

Systems and generics

Various Meridian 1 systems are equipped with software generics according to the customer's requirements and equipment compatibility. Descriptions of items include "System Hardware" and "Software Generic" headings to indicate which system and software generic the item can be used with.

When the term “All” is used under the “System Hardware” heading, the item can be used with all systems. When the term “All” is used under the “Software Generic” heading, the item can be used with all generics. When hardware/software restrictions apply, the hardware and generics with which that item is compatible are listed. If “All” appears under both headings, no system/generic restrictions apply.

The software is ordered by a three- or four-digit code, where the first one or two digit designate the system hardware and the last two digits designate the software generic. The following software versions are available, where X is the system type per Table 1:

- X11 North American Business Features
- X37 Hotel/Motel Features
- X08 International Business Features

Table 1
Software generic/system hardware cross-reference

Generic	System Hardware
2411	Option 51C with NT5D14 Call Processor
2811	Option 51C with NT5D03 Call Processor
2511	Option 61C with NT5D10 Call Processor
2911	Option 61C with NT5D03 Call Processor
2611	Option 81C with NT5D10 Call Processor
3011	Option 81C with NT5D03 Call Processor

Equipment availability

The equipment listed in this document is available through Nortel Networks and Nortel Networks distributors. Equipment may be discontinued at any time. Contact a Nortel Networks representative for information on equipment availability.

Special features

Special features are purchased as options to a basic system. These features may consist of software, hardware, or both. Special features that include hardware (such as Call Detail Recording and Remote Peripheral Equipment) are described in separate Nortel Networks technical publications (NTPs). Those documents include the equipment requirements.

Electromagnetic interference

All cabinets are available either with or without suppression of electromagnetic interference (EMI).

Software packages

A variety of software packages provide basic and advanced system features. For information on software features, see *X11 Features and Services* (553-3001-306).

System Modules

Content list

The following are the topics in this section:

- [Reference list 29](#)
- [Feature description 29](#)
- [NT5D21 Core/Network Module 30](#)
- [NT8D35 Network Module 32](#)
- [NT8D37 Intelligent Peripheral Equipment Module 33](#)
- [NT8D49 Column Spacer Kit 34](#)
- [Card cage assemblies 35](#)
- [Pedestal and components 36](#)
- [Top cap 36](#)

Reference list

The following are the references in this section:

- *System Engineering* (553-3001-151)
- *Circuit Card: Installation and Testing* (553-3001-211)

Feature description

A Universal Equipment Module (UEM) is a self-contained unit that, when equipped, houses a cardcage and backplane, power and ground cabling, power units, I/O panels, circuit cards, and cables. When the cardcage is installed, the function of the UEM is established (e.g., it becomes a CPU/Network Module) and the module is no longer “universal.”

Without covers, each module is approximately 81.3 cm wide by 52.1 cm deep by 43.2 cm high (32 in. by 20.5 in. by 17 in.). With the front and rear covers in place, the UEM is 55.9 cm (22 in.) deep. A module weighs approximately 21.8 kg (48 lb) before circuit cards are installed.

The cards that can be used in each module are listed in this document. For specific card slot assignments, see *Circuit Card: Installation and Testing* (553-3001-211) for listings by card or *System Engineering* (553-3001-151) for listings by module.

NT5D21 Core/Network Module

System hardware—option 51C/61C/81C (minimum X11 release 21)

Purpose—Houses common control and network cards, the disk drive unit, and the other common equipment cards listed below.

Power requirements:

- AC systems: NT5D21AA Module; NT8D29 CE Power Supply
- DC systems: NT5D21AC Module; NT6D41 CE Power Supply

This module contains 18 card slots that support:

- 3-Port Extender (3PE) card
- Call Processor (CP) card
- Hybrid Bus Terminators
- Input/Output Disk Unit with CD-ROM (IODU/C)
- Core to Network Interface 3 card (CNI-3)
- Conference/TDS card
- D-Channel Interface (DCHI) card
- Multipurpose ISDN Signaling Processor (MISP) card
- Multipurpose Serial Data Link (MSDL) card
- Peripheral Signaling card
- Network and/or Superloop Network card

- Primary Rate Interface (PRI) and/or Digital Trunk Interface (DTI) card
- Fiber Junctor Interface (FIJI) card

Note: Hybrid Bus Terminators are installed between slots 0 and 1, slots 1 and 2, and slots 11 and 12.

Quantity—Two per system for options 61C and 81C, one per system for option 51C

NT8D35 Network Module

System hardware—option 51C/61C/81C

Purpose—Houses network cards in option 81C. Can also be used as a PRI and/or DTI expansion module with all of the system options listed above.

Power requirements:

- AC systems: NT8D35AA or NT8D35BA Module; NT8D29 CE Power Supply
- DC systems: NT8D35DC or NT8D35EA Module; NT6D41 CE Power Supply

This module contains 15 card slots that support:

- 3-Port Extender (3PE) card
- Conference/TDS card
- Fiber Network Interface (FIJI)
- Multipurpose ISDN Signaling Processor (MISP) card
- Multipurpose Serial Data Link (MSDL) card
- Network and/or Superloop Network card
- Peripheral Signaling card
- Primary Rate Interface (PRI) and/or Digital Trunk Interface (DTI) card
- Clock Controller card for option 81C only (must be installed in slot 13)
- Serial Data Interface (SDI) card

Note: BTUs are installed between slots 11 and 12, and slots 12 and 13 in NT8D35AA and NT8D35DC Network Modules. The NT8D35BA and NT8D35EA do not use BTUs.

Quantity—As required; see *System Engineering* (553-3001-151)

NT8D37 Intelligent Peripheral Equipment Module

System hardware—option 51C/61C/81C

Purpose—Houses one Controller card (NT8D01BC Controller-4 or NT8D01AD Controller-2) and up to 16 IPE cards.

Note: In vintages BA and EC, all of the IPE card slots are fully cabled for 24 pairs. In vintages AA and DC, only slots 0, 4, 8, and 12 are cabled for 24 pairs.

Power requirements:

- AC systems: NT8D37AA or BA; NT8D06 PE Power Supply
- DC systems: NT8D37DC or EC; NT6D40 PE Power Supply

Note: When 500/2500 telephones are equipped, a ringing generator (NT8D21 for AC systems or NT6D42 for DC systems) is required.

This module contains 16 IPE card slots (in addition to the slot for the Controller card) that support the following cards:

- Analog Line card
- Analog Message Waiting Line card
- Data Access card (DAC)
- Digital Line card
- Digitone Receiver (DTR) card
- E&M Trunk card
- S/T Interface Line card (SILC)
- U Interface Line card (UILC)
- Universal Trunk card

Quantity—As required; see *System Engineering* (553-3001-151)

NT8D49 Column Spacer Kit

System hardware—option 51C/61C/81C

Purpose—Bolts modules together for side-by-side expansion and maintains shielding against electromagnetic interference (EMI) and radio-frequency interference (RFI). The spacer kit includes:

- eight bushings
- expansion spacer
- RF gasketing

This module contains 19 card slots that support:

- 3-Port Extender (3PE) card
- Call Processor (CP) card
- Clock Controller card (CC)
- Core Bus Terminator (CBT) card
- Core Multi Drive Unit (CMDU)
- Core to Network Interface (CNI) card
- Input/Output Disk Unit with CD-ROM (IODU/C)
- I/O Processor (IOP) card
- Conference/TDS card
- D-channel Interface (DCHI) card
- Multipurpose ISDN Signaling Processor (MISP) card
- Multipurpose Serial Data Link (MSDL) card
- Peripheral Signaling card
- Network and/or Superloop Network card
- DTR card
- Primary Rate Interface (PRI) and/or Digital Trunk Interface (DTI) card
- Serial Data Interface (SDI) card

Note: BTUs are installed between slots 0 and 1, and slots 1 and 2.

Quantity—Two per system

Card cage assemblies

Purpose—Consists of a sheet metal case and an associated backplane. Provides the physical framework that houses the circuit cards and power supplies within the UEM. Card cage assemblies and their corresponding modules are listed in Table 2.

Table 2
Card cage assemblies

Card cage assemblies	Corresponding module
NT5D2101	NT5D21 Core/Network Module
NT8D3503	NT8D35 Network Module
NT8D3703	NT8D37 IPE Module

Pedestal and components

System hardware—All

Purpose—The base for each column. Approximately 81.3 cm wide by 66 cm deep by 25.4 cm high (32 in. by 26 in. by 10 in.) and 13.6 kg (30 lb) empty. Leveling feet are provided for up to four tiers; a caster option is available for up to two tiers.

There are two versions of the pedestal:

- NT8D27BB for AC power
- NT7D09CA for DC power

The NT8D27BB and NT7D09CA Pedestals house the following field-replaceable assemblies:

- air filter P0699798
- air grill P0699797
- blower unit NT8D52AB for AC power
NT8D52DD for DC power
- leveling foot A0318207
- PDU NT8D53CA for AC power
NT7D67CB for DC power
- system monitor NT8D22

Note: Conduit is not required with the NT7D67CB PDU.

Top cap

System hardware—All

Purpose—Mounts on the highest module of each column. Approximately 81.3 cm wide by 55.9 cm deep by 10.2 cm high (32 in. by 22 in. by 4 in.) and 3.6 kg (8 lb). Consists of front and rear air exhaust grills and thermal sensors. There are two versions of the top cap:

- NT7D00AA for AC power
- NT7D00BA for DC power

Power and cooling equipment

Content list

The following are the topics in this section:

- [Reference list 38](#)
- [A0321130 Fan Unit 38](#)
- [A0355200 Power Failure Transfer Unit 39](#)
- [A0367916 Power Supply –48V 39](#)
- [MFA150 Modular Power System 39](#)
- [MPP600 Modular Power Plant 40](#)
- [NT6D40 PE Power Supply DC 41](#)
- [NT6D41 CE Power Supply DC 41](#)
- [NT6D42 Ringing Generator DC 41](#)
- [NT7D67CB Power Distribution Unit DC 42](#)
- [NT8D06AB PE Power Supply AC 42](#)
- [NT8D21 Ringing Generator AC 42](#)
- [NT8D22 System Monitor 43](#)
- [NT8D29AB CE Power Supply AC 43](#)
- [NT8D46AC Thermostat Harness 43](#)
- [NT8D46AM Air Probe Harness AC 44](#)
- [NT8D46DC Air Probe Harness DC 44](#)
- [NT8D52AB Pedestal Blower Unit AC 44](#)

- [NT8D52DD Pedestal Blower Unit DC 44](#)
- [NT8D53CA Power Distribution Unit AC 45](#)
- [NT8D53AD Power Distribution Unit 45](#)
- [NT8D56AA CE Module Power Distribution Unit 45](#)
- [NT8D56AC CE/PE Module Power Distribution Unit 45](#)
- [NT8D57AA PE Module Power Distribution Unit 46](#)
- [QBL12 Battery Distribution Box 46](#)
- [QBL15 Power Distribution Box 46](#)

Reference list

The following are the references in this section:

- *MPP600 Modular Power Plant: Description, installation, operation and maintenance manual* (167-9021-105)
- *50-amp Rectifier Expansion Assembly Installation*

A0321130 Fan Unit

System hardware—Option 21A (X11 release 15–17)

Purpose—Provides cooling for the system to prevent over-temperature conditions. Attached to the fan and sensor panel at the base of the top cap. Power to the fans is controlled by the circuit breaker on the power distribution unit (PDU) in the pedestal.

Quantity—Two per system

A0355200 Power Failure Transfer Unit

System hardware—All

Purpose—Provides an interface between CO lines, the Meridian 1, and 500/2500 telephones (rotary dial and push-button). Allows eight telephones to be connected directly to the CO lines in the event of a power failure or malfunction. The PFTU is invisible to the Meridian 1 and CO lines during normal operations.

Approximately 12.1 cm wide by 34.3 cm long by 4.1 cm high (4.75 in. by 13.5 in. by 3.5 in.). The wall-mount unit connects to the main distribution frame and the Meridian 1 with two 25-pair cables.

Requires approximately 200 mA of –48 V DC power. In DC-powered systems, the PFTU is powered from a spare output on the power distribution panel in the power system. In AC-powered systems, the PFTU is powered by an AO367916 power supply.

Quantity—One per every eight bypass/transfer lines required in the system

A0367916 Power Supply –48V

System hardware—All (AC-powered systems)

Purpose—A wall-mount unit that powers the PFTU in AC-powered systems. Converts 120 V AC (nominal) to –48 V DC (nominal) with a 1.25-amp output. Can also be used to power other auxiliary devices that require –48V power.

Quantity—One per every six PFTUs

MFA150 Modular Power System

System hardware—Option 51C/61C/81C (DC-powered systems)

Purpose—Replaces the rectifier/rack assembly that includes the NT6D52 Rectifier and QBL15 Power Distribution Unit.

The MFA150 is a modular, front-access power system with a positive ground and –48 V DC output capacity of 150 amps, provided in 25-amp increments using plug-in NT5C06 rectifier modules. The MFA150 is suitable for any system with power requirements of less than 150 amps.

The ordering codes for the complete power plant are NT5C90EF and NT5C90EG. Each of these configurations is a complete power bay with an NT6C14GB Control and Distribution Panel mounted on an NT6C40DC Seismic Rack.

- NT5C90EF is a single MPS75 shelf, with a capacity of 75 amps
- NT5C90EG is a dual-shelf configuration, with a capacity of 150 amps

The MFA150 power system requires one 50-amp power feed per shelf.

Quantity—One MFA150 is required per DC system (configured with one to six NT5C06 rectifiers, as required by system power consumption), installed in one or two MPS75 shelves.

MPP600 Modular Power Plant

System hardware—Option 51C/61C/81C (DC-powered systems)

Purpose—Replaces the NT6D82 Power System and QCA13 Power Cabinet.

The MPP600 is a modular power distribution and control system. It is contained in a cabinet that provides front and rear access. The power plant provides –48 V DC output at a maximum capacity of 600 amps, provided in 50-amp increments by up to 12 plug-in rectifier modules. The NT5C07 Modular Power Rectifiers are contained in one or two cabinets, providing 300 amps per cabinet. Each rectifier requires one 20-amp feed of single-phase 60 Hz, 208 V or 240 V AC input.

For information on the MPP600 Modular Power Plant, see the following documents:

- *MPP600 Modular Power Plant: Description, installation, operation and maintenance manual* (167-9021-105)
- *50-amp Rectifier Expansion Assembly Installation*

Quantity—One per system, consisting of one or two cabinets housing as many rectifiers as required to meet system power needs

NT6D40 PE Power Supply DC

System hardware—Options 51C/61C/81C (DC only)

Purpose—Converts -48 V DC to $+5$ V, $+8.5$ V, ± 10 V, ± 15 V, and -48 V DC voltages used to power peripheral equipment circuit cards and to supply talk battery to lines and trunks. Located in the far left-hand card slot labeled “PE Pwr Sup.”

Quantity—One in each of the following modules:

- NT8D37DC or NT8D37EC IPE Module

NT6D41 CE Power Supply DC

System hardware—Options 51C/61C/81C (DC-powered systems)

Purpose—Converts -48 V DC to $+5$ V and ± 12 V DC to provide required voltages for CPU, network, and Meridian Mail equipment. Located in the far left-hand card slot labeled “CE Pwr Sup.”

Quantity—One in each of the following modules:

- NT5D21DC Core/Network Module
- NT8D35DC Network Module

NT6D42 Ringing Generator DC

System hardware—Options 51C/61C/81C (DC-powered systems)

Purpose—Replaces the NT7D03 Ringing Generator DC.

A 16-ringer ringing generator. Operates from a nominal -52 V DC input and provides selectable AC ringing voltage outputs superimposed on -52 V DC. Frequency and voltage options are 20/25/50 Hz and 70/75/80/86 V AC. Supplies -120 (-100 with vintage NT6D42CC) or -150 V DC Message Waiting lamp voltages for 500/2500 telephones. Located to the right of the NT6D40 PE Power Supply.

Quantity—One in each of the following modules if the module supports 500/2500 telephones:

- NT8D37DC or NT8D37EC IPE Module

NT7D67CB Power Distribution Unit DC

System hardware—Options 51C/61C/81C (DC-powered systems)

Purpose—Replaces the NT7D10 PDU. However, NT7D67 and NT7D10 PDUs can be mixed in a system.

Distributes power to the entire column. Located in the rear of the pedestal. Houses five circuit breakers (one for each module and one for the blower unit) and the system monitor.

Quantity—One per pedestal/column

NT8D06AB PE Power Supply AC

System hardware—Options 51C/61C/81C (AC-powered systems)

Purpose—Converts 208/240 V AC to +5V, +8.5V, $\pm 10V$, $\pm 15V$, and $-48 V$ DC voltages used to power peripheral equipment logic cards and to supply talk battery to lines and trunks. Located in the far left-hand card slot labeled “PE Pwr Sup.”

Quantity—One in each of the following modules:

- NT8D37AA or NT8D37BA IPE Module

NT8D21 Ringing Generator AC

System hardware—Options 51C/61C/81C (AC-powered systems)

Purpose—Operates from a nominal 208/240 V AC input and provides selectable AC ringing voltage outputs superimposed on $-48 V$ DC. Frequency and voltage options are 20/25/50 Hz and 70/80/86 V AC. Supplies $-150 V$ DC Message Waiting lamp voltages for 500/2500 telephones. Located to the right of the NT8D06 PE Power Supply.

Quantity—One in each of the following modules if the module supports 500/2500 telephones:

- NT8D37AA or NT8D37BA IPE Module

NT8D22 System Monitor

System hardware—Options 51C/61C/81C

Purpose—Monitors the status of all internal power and cooling-related components, as well as external DC rectifiers, batteries, and uninterruptible power supplies (UPS). Mounted in the rear of the pedestal.

The system monitor that handles the communication with the system CPU (via SDI port) is the master; all others function as slaves. There is a serial communication link between the master and the slaves. In addition to CPU status reporting, the system monitor controls all external visual status indications.

Quantity—One master and up to 63 slaves per system; one required for each column

NT8D29AB CE Power Supply AC

System hardware—Options 51C/61C/81C (AC-powered systems)

Purpose—Converts 208/240 V AC to +5V and ± 12 V DC to provide required voltages for CPU, network, and Meridian Mail equipment. Located in the far left-hand card slot labeled “CE Pwr Sup.”

Quantity—One in each of the following modules:

- NT5D21AA Core/Network Module
- NT8D35AA Network Module

NT8D46AC Thermostat Harness

System hardware—Options 51C/61C/81C

Purpose—Part of the temperature sensor assembly. Contains two thermal sensors and a fault LED. At 70 degrees C (158 degrees F), the thermal sensors open and notify the system monitor, which shuts down the system. Plugs into the backplane of the top module.

Quantity—One per column

NT8D46AM Air Probe Harness AC

System hardware—Options 51C/61C/81C (AC-powered systems)

Purpose—Part of the temperature sensor assembly. Senses exit air temperature and relates the information to the blower unit.

Quantity—One per top cap

NT8D46DC Air Probe Harness DC

System hardware—Options 51C/61C/81C (DC-powered systems)

Purpose—Part of the temperature sensor assembly. Senses exit air temperature and relates the information to the blower unit.

Quantity—One per top cap

NT8D52AB Pedestal Blower Unit AC

System hardware—Options 51C/61C/81C (AC-powered systems)

Purpose—Housed in the front of the pedestal. Provides forced-convection cooling. Contains two backward-curved cylindrically shaped impellers (rotor blades) that are approximately 22.8 cm (9 in.) in diameter and 6.9 cm (2.75 in.) thick. Each unit weighs about 1.5 kg (3.5 lb). Communicates with the power distribution system through a connector on the rear of the PDU.

A circuit breaker on the front of the blower chassis turns the unit on and off.

Quantity—One per pedestal

NT8D52DD Pedestal Blower Unit DC

System hardware—Options 51C/61C/81C (DC-powered systems)

Purpose—Housed in the front of the pedestal. Provides forced-convection cooling. Contains two backward-curved cylindrically shaped impellers (rotor blades) that are approximately 22.8 cm (9 in.) in diameter and 6.9 cm (2.75 in.) thick. Each unit weighs about 1.5 kg (3.5 lb). Communicates with the power distribution system through a connector on the rear of the PDU.

A switch on the front of the blower chassis turns the unit on and off. There is also a dedicated circuit breaker on the PDU.

Quantity—One per pedestal

NT8D53CA Power Distribution Unit AC

System hardware—Options 51C/61C/81C (AC-powered systems)

Purpose—Distributes power to the entire column. Located in the rear of the pedestal. Houses the main circuit breaker for the system.

Quantity—One per pedestal/column in AC systems

NT8D53AD Power Distribution Unit

System hardware—Options 51C/61C/81C (AC-powered systems)

Purpose—A panel located in the pedestal that distributes power to the module and top cap. Contains a circuit breaker and power distribution components optimized for single-module operation.

Quantity—One per system

NT8D56AA CE Module Power Distribution Unit

System hardware—All (AC-powered systems)

Purpose—The MPDU protects the power supply and distributes power within a module. Houses a single breaker used in conjunction with the NT8D29 CE Power Supply AC.

Quantity—One in each of the following modules:

- NT5D21AA Core/Network Module
- NT8D35AA Network Module

NT8D56AC CE/PE Module Power Distribution Unit

System hardware—Options 51C/61C/81C (AC-powered systems)

Purpose—The MPDU protects the power supply and distributes power within a module. Houses a single breaker.

Quantity—One per NT8D37AA or NT8D37BA IPE Module

NT8D57AA PE Module Power Distribution Unit

System hardware—Options 51C/61C/81C (AC-powered systems)

Purpose—The MPDU protects the power supply and distributes power within a module. Houses a dual breaker and is used in conjunction with the NT8D06 PE Power Supply AC and the NT8D21 Ringing Generator AC.

Quantity—One in each of the following modules:

- NT8D37AA or NT8D37BA IPE Module

QBL12 Battery Distribution Box

System hardware—Options 51C/61C/81C (DC-powered systems)

Purpose—Connects customer-provided external power sources to the system. Allows connection of up to 12 columns.

Quantity—One per system when customer supplies power source

QBL15 Power Distribution Box

System hardware—Options 21/21E/51/61 and systems MS/N/N(QCA96)/ST/NT/SN (DC-powered systems). It can also be used in the QCA137, QCA144, and QCA146 cabinets.

Purpose—Replaced by the MFA150 Modular Power System.

Allows the parallel connection of up to three NT6D52 Rectifiers, for connection to the system and to reserve batteries. Includes main fuses, diode blocking, test points, QPC188 Battery Monitor Card, and sense lead fusing on connections from each rectifier.

Quantity—One per every three NT6D52 Rectifiers, to a maximum of two QBL15s per system.

Common equipment cards

Content list

The following are the topics in this section:

- [Reference list 48](#)
- [NT1P61 Fibre Superloop Network Card 48](#)
- [NT1P63 Fibre Electro-optical Interface packet 48](#)
- [NT5D03 Call Processor Card 49](#)
- [NT5D10 Call Processor Card 50](#)
- [NT5D12AA Dual DTI/PRI \(DDP\) Card 51](#)
- [NT5D61 Input/Output Disk Unit with CD-ROM \(IODU/C\) 51](#)
- [NT6D65 Core to Network Interface Card 52](#)
- [NT6D73 Multipurpose ISDN Signaling Processor 54](#)
- [NT6D80 Multipurpose Serial Data Link Card 55](#)
- [NT7R51 Local Carrier Interface Card 55](#)
- [NT8D04 Superloop Network Card 56](#)
- [NT8D17 Conference/TDS Card 56](#)
- [NT8D18 Network/DTR Card 57](#)
- [NT8D41BA Quad Density Serial Data Interface 57](#)
- [NT8D72 Primary Rate Interface 2 Mbps 58](#)
- [NTRB33 Fiber Junctor Interface \(FIJI\) Card 58](#)
- [NTRB34 Core Network Interface 3 \(CNI-3\) Card 59](#)

- [NTRE39 Optical Cable Management Card \(OCMC\) 59](#)
- [QPC43 Peripheral Signaling Card 60](#)
- [QPC414 Network Card 60](#)
- [QPC441 Three-Port Extender Card 60](#)
- [QPC471 Clock Controller Card 61](#)
- [QPC720 Primary Rate Interface Card 61](#)
- [QPC775 Clock Controller 62](#)
- [QPC841 Four-Port Serial Data Interface Card 62](#)

Reference list

The following are the references in this section:

- *System Engineering (553-3001-151)*
- *ISDN Basic Rate Interface: Product Description (553-3901-100)*

NT1P61 Fibre Superloop Network Card

System hardware—All

Purpose—Provides 120-timeslot (one superloop) interface between network and intelligent peripheral equipment. Utilizes the equivalent of four network loops. Can be connected to one NT1P62 Fibre Peripheral Controller card.

The superloop network card is equipped with a Motorola 68000-type microprocessor that performs network diagnostics and signaling control, and communicates with the intelligent peripheral controller over a fibre-optic span.

Quantity—As required. See *System Engineering (553-3001-151)* for engineering details.

NT1P63 Fibre Electro-optical Interface packet

System hardware—All

Purpose—Provides a synchronous 155.52 MBps point-to-point transmission facility between the Fibre Superloop Network card MPU and the Fibre Peripheral Controller card MPU.

Quantity—Up to two on each Fibre Superloop Network card (NT1P61). The second packet on the Network card provides a redundant fibre-optic link.

NT5D03 Call Processor Card

System hardware—Options 51C/61C/81C

Purpose—The Call Processor card, the main processor in the system, is a 32-bit Motorola 68LC060, 66 MHz microprocessor. The NT5D03 CP card delivers a real-time capability improvement to the NT5D10 CP card. The Call Processor card performs the following main functions:

- Executes all call processing software at a higher clock rate than the NT5D10 CP card.
- Interfaces with the interprocessor bus over the backplane for communication with other cards on the IPB, using the Bus Interface Circuit (BIC) for communication with the IPB.
- Provides on-board main memory and cache memory
- Provides a system time-of-day clock/calendar
- Provides a pair of serial data ports for maintenance and administration.

Note: Cabling the Call Processor cards together allows memory shadowing and dual-CPU operation. The CP card is available in the following memory configurations:

CP Memory	Product code
48 MB	NT5D03AA
64 MB	NT5D03BA
80 MB	NT5D03CA
112 MB	NT5D03EA
128 MB	NT5D03FA

Quantity—One per NT5D21 Core/Network Module for Options 51C/61C/81C. Each CP card occupies two card slots.

NT5D10 Call Processor Card

System hardware—Options 51C/61C/81C

Purpose—The Call Processor card, the main processor in the system, is a 32-bit Motorola 68LC060, 66 MHz microprocessor. The Call Processor card performs the following main functions:

- Executes all call processing software
- Interfaces with the interprocessor bus over the backplane for communication with other cards on the IPB, using the Bus Interface Circuit (BIC) for communication with the IPB.
- Provides on-board main memory and cache memory
- Provides a system time-of-day clock/calendar
- Provides a pair of serial data ports for maintenance and administration.
- Cabling the Call Processor cards together allows memory shadowing and dual-CPU operation.

Note: The CP card is available in the following memory configurations:

CP Memory	Product code
48 MB	NT5D10AA
64 MB	NT5D10CA
80 MB	NT5D10EA
112 MB	NT5D10JA

Quantity—One per NT6D60 Core Module for Option 81 and one per NT5D21 Core/Network Module for Options 51C/61C/81C. Each CP card occupies two card slots.

NT5D12AA Dual DTI/PRI (DDP) Card

System Hardware—Options 51C/61C/81C X11 release 18 or later; requires the DP patch.

Purpose—Provides two DTI/PRI network connections, an optional connection to an external D-Channel Handler (QPC757 DCHI or NT6D80 MSDL), and an optional plug-on D-Channel Daughterboard (DDCH, NTBK51AA). The card integrates the functionality of two QPC472 DTI/QPC720 PRI cards and one QPC414 Network card into a single card.

The NT5D12AA occupies a single Network shelf slot. The DDP card supports all features (except the echo canceller and protocol conversion) of the QPC720. It provides an interface to the 1.5 Mbps external digital line, either directly or through an office repeater, Line Terminating Unit (LTU), or Channel Service Unit (CSU).

Quantity—As required.

NT5D61 Input/Output Disk Unit with CD-ROM (IODU/C)

System hardware—Options 51C/61C/81C

Purpose—Introduced in X11 release 23, the Input/Output Disk Unit with CD-ROM (IODU/C) is used to load the programs and office data into the system memory. IODU/C uses an industry-standard 2MB floppy drive instead of a 4MB floppy drive. Additionally, the NT5D61AA IODU/C has a CD-ROM drive accessed on the faceplate, to facilitate loading software from a CD-ROM containing system software.

A Security Device attached to the IODU/C and an electronic Keycode file are used to perform the validation of the customers' specific features and software release. The Security Device is a removable component to allow the replacement of an IODU/C without the need to order a new Security Device.

The IODU/C also contains:

- I/O processor circuitry
- one 2MB 3.5-inch high-density floppy drive with a formatted capacity of 1.44 MB.

- one CD-ROM drive (in NT5D61AA vintage only)
- one 3.5-inch hard disk drive with a minimum capacity of 120 MB

The IODU/C occupies slots 17, 18, and 19 in the NT5D21 Core/Network Module for Options 51C, 61C, and 81C and requires 5 V and 12 V from the module.

The IODU/C is available in two vintages:

NT5D61AA	Includes hard drive, 2MB floppy drive, and CD-ROM drive.
NT5D61BA	Includes hard drive and 2MB floppy drive.

Note: NT5D61AA is mandatory on Option 51C systems. Option 61C/81C systems must have at least one NT5D61AA IODU/C to allow software installation from CD-ROM.

The IODU/C supports card-ID, which includes the card type, NT code, serial number, and any other relevant data for the IODU/C.

NT6D65 Core to Network Interface Card

System hardware—Options 51C/61C/81/81C

Purpose—The CNI card provides the interface between the interprocessor bus and the network shelves, and between the Call Processor Card and QPC441 3PE Cards in the network shelf. Each CNI card provides two ports (you are not required to use both ports).

CNI cards are used in the NT5D21 Core/Network Module for Options 51C, 61C, and 81C:

System type	Network Groups	CNI cards required	Module	Slots used
51C	1/2	1	NT5D21 Core/ Network Module NT5D21 Core/ Network Module	12
61C	1	1	NT5D21 Core/ Network Module	12
81C	1 2 3 4 5	1 1 2 2 3	NT5D21 Core/ Network Module	12 12 12, 13 12, 13 12, 13, 14

NT6D73 Multipurpose ISDN Signaling Processor

System hardware—Option 51C/61C/81C (minimum X11 release 18)

Purpose—The MISP card is a microprocessor-controlled signaling processor that provides a communication interface between the CPU and peripheral devices. The MISP card interfaces with S/T Interface Line Cards (SILCs) and U Interface Line Cards (UILCs). The main functions of the MISP are to:

- communicate with the CPU to report ISDN BRI status and receive downloaded application software and configuration parameters
- manage data link layer and network layer signaling that controls call connection and terminal identification
- control terminal initialization and addressing
- assign B-channels for switched voice and data transmission by communicating with the BRI terminal over the D-channel and allocating to it an idle B-channel with appropriate bearer capabilities
- separate D-channel data from signaling information and route the data to the packet handler
- send call control messages to ISDN BRI terminals over the D-channel

The MISP occupies one slot in the Network module. It uses one of the network loops to interface with SILCs and UILCs and to provide 32 timeslots for D-channel signaling and packet data transmission. The other loop address is used to communicate with the CPU.

Quantity—See *ISDN Basic Rate Interface: Product Description* (553-3901-100) for capacity requirements.

NT6D80 Multipurpose Serial Data Link Card

System hardware—Option 51C/61C/81C (minimum X11 release 18)

Purpose—The MSDL card provides the signaling interface for primary rate interface (PRI) D-channels or application module link (AML) applications. It utilizes four full-duplex serial I/O ports that are independently configured. The MSDL card can coexist with other cards that support the same functions (such as QPC513 ESDI Cards).

Note: This card currently does not support asynchronous mode, thus with release 18 the realistic maximum number of MSDL cards is 14. This leaves two SDI port addresses for communication with the Meridian 1 via a terminal.

A Meridian 1 can support 16 MSDL cards. Since each card has four ports, a maximum of 64 ports are supported.

Quantity—Up to 16 per system

NT7R51 Local Carrier Interface Card

System hardware—All

Purpose—Provides 120-timeslot (one superloop) interface between network and intelligent peripheral equipment. Utilizes the equivalent of four network loops. Can be connected to one NT1R52 Remote Carrier Interface Card.

The Superloop Network card is equipped with a Motorola 68000-type microprocessor that performs network diagnostics and signaling control, and communicates with the Intelligent Peripheral Controller over a T1 or E1 carrier span.

Quantity—As required; see *System Engineering* (553-3001-151)

NT8D04 Superloop Network Card

System hardware—All

Purpose—Provides 120-timeslot (one superloop) interface between network and intelligent peripheral equipment. Utilizes the equivalent of four network loops. Can be connected to one or two NT8D01 Controller Cards.

The Superloop Network card is equipped with a Motorola 68000-type microprocessor that performs network diagnostics and signaling control, and communicates with the Intelligent Peripheral Controller.

Quantity—As required; see *System Engineering* (553-3001-151) for engineering details.

NT8D17 Conference/TDS Card

System hardware—All

Purpose—Provides both conference and tone and digit switch (TDS) functions. Accesses two network loops, one for each function.

The conference circuitry has a warning tone option and supports broadcast mode. Up to 15 simultaneous conferences can be controlled with the restriction that the total number of conferees in all conferences is not greater than 30. The TDS circuitry provides tones for different countries (up to 256 tones and cadences).

The Multi-frequency signaling (MSF) provides Automatic Number Identification (ANI) digits over Centralized Automatic Message Accounting (CAMA) trunks to a toll switching CAMA, Traffic Operator Positioning System (TOPS), or Traffic Service Positioning System (TSPS) office

Quantity—As required; see *System Engineering* (553-3001-151)

NT8D18 Network/DTR Card

System hardware—Option 21A/21/21E

Purpose—Combines the functionality of the Superloop Network, Controller, and Digitone Receiver cards in a mother/daughterboard assembly. The network is a full superloop (120 timeslots). Plugs into a dedicated slot on the backplane. The daughterboard, which contains eight separate DTR circuits, attaches to the motherboard through an SDI/ESDI connector and does not connect to the backplane.

Quantity—One per NT8D11 CE/PE Module

NT8D41BA Quad Density Serial Data Interface

System hardware—Option 51C/61C/81C

Purpose—Replaces the QPC841 Quad Density Serial Data Interface, NT8D14AA Extended Dual Density Serial Data Interface, and QPC139 Dual Density Serial Data Interface cards. For dual density cards, it is a one for two replacement. Provides four serial ports between the Meridian 1 processor and an external device. Each port supports:

- RS-232-C interface
- 8-bit ASCII data, no parity and 1 stop bit
- asynchronous, start-stop operation
- data rates of 150, 300, 600, 1200, 2400, 4800, 9600, and 19200 baud
- DTE mode
- DCE mode

Quantity—One per Core/Network Module on Options 51C/61C/81C.

NT8D72 Primary Rate Interface 2 Mbps

System hardware—Option 51C/61C/81C

Software generic—X11 International Phase 5 and later

Purpose—The Primary Rate Interface (PRI) card allows thirty 64 kbps clear channel operation with a single 64 kbps common signaling channel. The PRI circuit card provides the physical carrier interface.

The NT8D72BA vintage card provides a fully compliant card for the introduction of Euro ISDN. It complies with the following:

- CCITT G.703 specification for both Private and CO connectivity
- Euro ISDN requirements including ETSI specifications and country application requirements
- PTT 850.614
- ETS 300 001

Quantity—One per Primary Rate Access (PRA) link

NTRB33 Fiber Junctor Interface (FIJI) Card

System hardware—Option 81/81C

Purpose—The Fiber Network feature introduces the FIJI card for Option 81 and 81C systems. FIJI cards are installed in Network modules and connect with fiber optic cables to form a Dual Ring Fiber Network. This network replaces the Intergroup Module and consists of two separate rings; one ring connects all of the Shelf 0's while the second ring connects all of the Network Shelf 1's. This network communicates on a subset of the Sonet OC 12c protocol (22 Mb bandwidth on each ring).

The Dual Ring fiber optic cable configuration provides complete non-blocking communication between the network groups; this eliminates the occurrence of busy signals for calls switched between groups. Each FIJI card can handle 32 PCM links. A system of eight Network groups provides 7680 timeslots for 3840 simultaneous conversations.

Quantity—One FIJI card per Network module.

NTRB34 Core Network Interface 3 (CNI-3) Card

System hardware—Option 81/81C

Purpose—The CNI-3 card provides the interface between the interprocessor bus and the network shelves, and between the Call Processor Card and QPC441 3PE Cards in the network shelf. Each CNI-3 card provides three ports. A mixture of CNI and CNI-3 cards can be used, but the same mixture must be used in the Network modules.

The first two ports are connected from the backplane with two NTND14 CNI to 3PE cables per port. The third port connects from the faceplate of the CNI-3 card with two NT9D89 CNI-3 to 3PE cables. When a CNI card is upgraded to a CNI-3 card, the original NTND14 cables can be left in place; only the NT9D89 CNI-3 to 3PE faceplate cables must be added.

Quantity—Up to three CNI-3 cards per Core or Core/Net module.

NTRE39 Optical Cable Management Card (OCMC)

System hardware—Option 81/81C

Purpose—The OCMC is installed in Network modules to store and protect excess cable length. The OCMC ensures that the fiber cable is not bent beyond a 30 mm bend radius.

The OCMC contains no electronic components and is not powered by the backplane. This card is used primarily in Fiber Network upgrades where the intergroup cable distances vary greatly.

OCMC is a single width card installed between the Power Supply and slot 1 of a Network module.

Quantity—One OCMC per Network module, as required.

QPC43 Peripheral Signaling Card

System hardware—Option 51C/61C/81C

Purpose—Provides a signaling interface between the CPU and PE through the network cards. Provides basic bit rate 2.048 MHz clock and timing signals for real-time functions.

Quantity—One per NT8D35 Network Module.

QPC414 Network Card

System hardware—Option 51C/61C/81C

Software generic—X11

Purpose—Provides 30 traffic timeslots for every network loop. Provides speech path switching, signaling, and control circuits for two network loops. Interfaces between network and Meridian Mail Modules, and PRI and DTI cards.

Quantity—As required; see *System Engineering* (553-3001-151)

QPC441 Three-Port Extender Card

System hardware—Option 51C/61C/81C

Software generic—X11

Note: Replace QPC441 vintages for systems with X11 release 18 and higher software as follows: A or B with B1, C with D, E (series A) with E (series B), E1 (series A) with E1 (series B), or with F.

Purpose—The 3PE card extends CPU data, address, and control signals to network loops:

- In Options 51C, 61C, and 81C, 3PE cards interface with NT6D65 Core to Network Interface Cards.
- For Option 81C systems, vintage F or later is required in all modules (i.e., Core/Net and Network).

Note: Port 0 on the 3PE card in each Core/Network Module extends the interprocessor bus to the interface section on the backplane, not to a network loop.

Quantity—One per NT5D21 Core/Network Module.

QPC471 Clock Controller Card

System hardware—All

Software generic—X11

Purpose—Used in Option 81C to synchronize the Meridian 1 network to an external source clock and to generate and distribute clock to the Meridian 1 system. Also used with PRI and DTI in all options. In Option 51C, used only when equipped with PRI or DTI.

Note: With Options 51C, 61C, and 81C, minimum vintage H is required.

Quantity—Two for Options 61C/81C; one for Option 51C.

QPC720 Primary Rate Interface Card

System hardware—All

Purpose—The ISDN PRI card allows 64 kbps clear 23-channel operation with a single 64 kbps common signaling channel. It is used in conjunction with the QPC757 DCHI Card to provide Primary Rate Access (PRA). The PRI circuit card provides the physical DS-1 interface and is also used for DTI applications.

Quantity—One per PRA or DTI link

QPC775 Clock Controller

System hardware—MS/N(QCA58)/XN(QCA55)/NT/ST/SN/XT

Software generic—X11 release 5 and later for N and XN; X11 release 8 and later for ST, NT, and XT; X11 release 10 and later for SN and MS; X08 release 11 and later for NT and XT

Purpose—The Clock Controller (CC) is used with the Digital Trunk Interface feature to synchronize the Meridian SL-1 network to an external source clock and to generate and distribute clock to the Meridian SL-1. Works in both 1.5 and 2.0 MB applications, meets CCITT specifications, and supersedes QPC471.

The QPC775 can also be used to replace the QPC411 (System Clock Generator); but it cannot be used in conjunction with either the QPC471 or the QPC411. All cards in the system must be of the same type.

The QPC775E vintage Clock Controller circuit card permits basic rate trunk connections from the Meridian 1 to the European Public Network to maintain a more consistent clock.

QPC841 Four-Port Serial Data Interface Card

System hardware—All

Purpose—Provides four serial ports between the system processor and an external device. Each port supports:

- RS-232-C interface
- 8-bit ASCII data with parity and stop bit
- asynchronous, start-stop operation
- data rates of 300, 600, 1200, 2400, 4800, and 9600 baud
- DTE mode
- DCE mode

Quantity—Up to four per system.

Peripheral equipment cards

Content list

The following are the topics in this section:

- [Reference list 68](#)
- [NT1P62 Fibre Peripheral Controller Card 69](#)
- [NT1R20 OPS Analog Line Card 69](#)
- [NT5D11AA Line side T1 Line Card 69](#)
- [NT5D14AA Line side T1 Line Card 70](#)
- [NT5D51 Meridian Integrated Conference Bridge \(MICB\) 70](#)
- [NT5D60AA CLASS Modem Card \(XCMC\) 72](#)
- [NT5G11 Meridian Integrated Call Assistant \(MICA\) Card 72](#)
- [NT5K02 Flexible Analog Line Card 73](#)
- [NT5K02AB Flexible Analog Line Card \(Australia\) 74](#)
- [NT5K02DA Flexible Analog Line Card \(France\) 75](#)
- [NT5K02JA Flexible Analog Line Card \(Denmark\) 76](#)
- [NT5K02KA Flexible Analog Line Card \(Holland\) 76](#)
- [NT5K02LB Flexible Analog Line Card \(New Zealand\) 77](#)
- [NT5K02MA Flexible Analog Line Card \(Norway\) 78](#)
- [NT5K02NB Flexible Analog Line Card \(Sweden\) 78](#)
- [NT5K02SA Flexible Analog Line Card \(Spain\) 79](#)
- [NT5K07 Universal Trunk Card \(Hong Kong\) 80](#)

- NT5K09 Quad DTMF Receiver 82
- NT5K10 Enhanced Dual Loop Peripheral Buffer 82
- NT5K17 Direct Dial Inward (DDI) Trunk Card (UK) 83
- NT5K17BA DDI Trunk Card (New Zealand) 83
- NT5K18 Flexible Central Office Trunk Card (UK) 84
- NT5K18BA Central Office Trunk Card (New Zealand) 85
- NT5K19 Flexible E&M Trunk Card (UK) 86
- NT5K19BA E&M Tie Trunk Card (New Zealand) 86
- NT5K20 Extended Tone Detector (UK) 88
- NT5K21AA Extended Multifrequency Compelled Sender/Receiver (XMFC/XMFE) 88
- NT5K36AA DID/DOD Trunk Card (Germany) 89
- NT5K36AB DID/DOD Trunk Card (Austria/Germany) 89
- NT5K48 Tone Detector Card (Global) 90
- NT5K48BA Tone Detector Card (Denmark) 91
- NT5K48DA Tone Detector Card (Norway) 92
- NT5K50AA E&M Tie Trunk Card (France) 92
- NT5K70AA Central Office Trunk Card (Finland/Germany) 94
- NT5K70AB Central Office Trunk Card (Austria/Finland/Germany) 94
- NT5K71AA Central Office Trunk Card (Germany) 95
- NT5K71AB Central Office Trunk Card (Austria/Germany) 96
- NT5K72AA E&M Tie Trunk Card (Austria/Finland/Germany) 97
- NT5K82AA Central Office Trunk Card (Switzerland) 98
- NT5K82BA/CA Central Office Trunk Card (Australia) 99
- NT5K82HA Central Office Trunk Card (Belgium) 100
- NT5K83AA E&M Tie Trunk Card (Spain/Switzerland) 101
- NT5K83BA E&M Tie Trunk Card (Denmark) 102

- NT5K83CA E&M Tie Trunk Card (Norway) 103
- NT5K83DA E&M Tie Trunk Card (Holland) 104
- NT5K83EA E&M Tie Trunk Card (Australia) 106
- NT5K83FA E&M Tie Trunk Card (Sweden) 107
- NT5K83GA E&M Tie Trunk Card (Italy) 108
- NT5K83HA E&M Tie Trunk Card (Belgium) 109
- NT5K84AA Direct Inward Dial (DID) Trunk Card (Switzerland) 111
- NT5K84BA Direct Dial Inward (DDI) Trunk Card (Australia) 112
- NT5K84HA Direct Inward Dial (DID) Trunk Card (Belgium) 113
- NT5K90AA Central Office Trunk Card (Denmark) 114
- NT5K90BA Central Office Trunk Card (Denmark) 114
- NT5K92AA Direct Inward Dial Auto Answer Circuit (DID Tester) (Austria/France/Germany/Switzerland) 115
- NT5K93AA Central Office Trunk Card (Norway) 115
- NT5K93BA Central Office Trunk Card (Norway) 116
- NT5K96JA Flexible Analog Line Card (Denmark) 117
- NT5K96KA Flexible Analog Line Card (Holland) 117
- NT5K96MA Flexible Analog Line Card (Norway) 117
- NT5K96NB Flexible Analog Line Card (Sweden) 117
- NT5K96SA Flexible Analog Line Card (Spain) 118
- NT5K99AA/BA Central Office Trunk Card (Spain) 118
- NT6D70BA S/T Interface Line Card (SILC) 119
- NT6D71 U Interface Line Card (UILC) 120
- NT6D72 Basic Rate Concentrator Signaling Card 121
- NT7D16 Data Access Card 121
- NT7R52 Remote Carrier Interface Card 121
- NT8D01 Controller Card 122

- [NT8D01AC Controller-4 Card 122](#)
- [NT8D01AD Controller-2 Card 123](#)
- [NT8D02 Digital Line Card 123](#)
- [NT8D03 Analog Line Card 124](#)
- [NT8D09 Analog Message Waiting Line Card 124](#)
- [NT8D14 Universal Trunk Card 125](#)
- [NT8D15 E&M Trunk Card 126](#)
- [NT8D16 Digitone Receiver Card 127](#)
- [NT9C14AA CO/FX/WATS Trunk Card 127](#)
- [NTAG03AA Central Office Trunk Card \(Holland\) 128](#)
- [NTAG04AA Central Office/Direct Inward Dial Trunk Card \(Holland\) 129](#)
- [NTAG26 Enhanced Multi-frequency Receiver 130](#)
- [NTAG36 Meridian Integrated RAN \(MIRAN\) 130](#)
- [NTBX80AA ISDN Network Termination Unit \(NT1\) 132](#)
- [NTBX84AA/BA Rack mount NT1 Card—Basic/Enhanced 132](#)
- [NTCK16 Generic Central Office Trunk Card 133](#)
- [NTCK18AA Central Office Trunk Card \(Italy\) 135](#)
- [NTCK22AA Direct Inward Dial Trunk Card \(Italy\) 136](#)
- [NTCK90 Companion Meridian 1 Controller Card 137](#)
- [NTCK91 Companion Meridian 1 Radio Card 137](#)
- [NTCK93 Companion Meridian 1 Line Card 137](#)
- [NTCW80 Meridian Integrated IP Telephony Gateway \(ITG\) Card 138](#)
- [QPC71 E&M/DX/Paging Trunk Card 139](#)
- [QPC250 Release Link Trunk Card 139](#)
- [Meridian 1QPC297 Attendant Console Monitor Card 140](#)
- [QPC311 Data Line Card 140](#)

- QPC327 MFC Sender/Receiver Card 140
- QPC341 Data Line Card 140
- QPC343 Ground Button Recall Line Card 140
- QPC353 Modem Pool Line Card 141
- QPC354 Modem Pool Line Card 141
- QPC390 Pulsed E&M Trunk Card 141
- QPC391 Pulsed E&M Trunk Card 141
- QPC397 MCDS Asynchronous Card 141
- QPC422 Tone Detector Card 141
- QPC430 Asynchronous Interface Line Card 142
- QPC432 4-Port Data Line Card 142
- QPC449 Loop Signaling Trunk Card 143
- QPC450 CO/FX/WATS Trunk Card 143
- QPC451 SL-1 Set Line Card 144
- QPC494 500/2500 Line Card (Message Waiting) 144
- QPC512 Personal Computer Interface Card 145
- QPC520 SL-1 Line Card 145
- QPC521 500/2500 Line Card 146
- QPC525 CO/FX/WATS Trunk Card with PPM 146
- QPC526 CO/FX/WATS Trunk Card with PPM 146
- QPC527 CO/FX/WATS Trunk Card 146
- QPC528 CO/FX/WATS Trunk Card 147
- QPC532 Ground Button Recall Line Card 147
- QPC540 Dial Tone Detector 147
- QPC550 DID Trunk Card 147
- QPC551 Radio Paging Trunk Card 148
- QPC558 Message Waiting Line Card 148

- [QPC559 Loop Signaling Trunk Card 148](#)
- [QPC560 Loop Signaling Trunk Card 148](#)
- [QPC574 Digitone Receiver 148](#)
- [QPC577 Digitone Receiver Daughterboard \(\$\mu\$ -Law\) 149](#)
- [QPC578 Integrated Services Digital Line Card 149](#)
- [QPC594 500/2500 Line Card 149](#)
- [QPC595 Digitone Receiver 150](#)
- [QPC596 Digitone Receiver Daughterboard \(A-Law\) 150](#)
- [QPC650 Music Trunk Card \(\$\mu\$ -Law\) 151](#)
- [QPC651 Music Trunk card \(A-Law\) 151](#)
- [QPC659 Dual Loop Peripheral Buffer Card 151](#)

Reference list

The following are the references in this section:

- *Meridian Data Services: Description* (553-2731-100)
- *Meridian Integrated Conference Bridge: Description, Installation, Administration, and Maintenance* (553-3001-102)
- *Line Cards: Description* (553-3001-105)
- *Trunk Cards: Description* (553-3001-106)
- *Meridian Integrated RAN: Description, Installation, and Operation* (553-3001-112)
- *Meridian Integrated IP Telephony Gateway (ITG): Description, Installation, and Operation* (553-3001-116)
- *System Engineering* (553-3001-151)
- *X11 Features and Services* (553-3001-306)
- *X11 Administration* (553-3001-311)
- *ISDN Basic Rate Interface: Product Description* (553-3901-100)

NT1P62 Fibre Peripheral Controller Card

System hardware—Fibre Remote IPE floor-standing module and wall-mounted cabinet.

Purpose—Provides a primary interface and control function between the NT1P61 Fibre Superloop Network Card in Meridian 1 and the IPE module at the Fibre Remote IPE site. Each controller card serves up to 16 IPE cards. The controller card is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics.

Quantity—One per NT8D37 IPE Module

NT1R20 OPS Analog Line Card

System hardware—Options 51C/61C/81C

Purpose—The Off-Premises Station Analog Line card provides eight full duplex interfaces used to connect off-premises terminals to the Meridian 1 system. Each interface provides lightning protectors for external line connection to the station.

The NT1R20BA OPS Analog Line Card provides:

- line supervision
- hookflash
- battery reversal

Quantity—Up to 15 per IPE module. It can also be installed in the CE/PE module PE slots.

NT5D11AA Line side T1 Line Card

System hardware—Options 51C/61C/81C

Purpose—An intelligent IPE line card that provides an all-digital connection between T1-compatible terminal equipment. Supports supervisory features and has access to 2500-type functionality. Use only on terminal equipment that has a T1 interface and line side feature capability.

Quantity—Up to fifteen per IPE module.

NT5D14AA Line side T1 Line Card

System hardware—All (Meridian 1 systems: in small Remote Fiber IPE cabinets)

Purpose—An intelligent IPE line card that provides an all-digital connection between T1-compatible terminal equipment. Supports supervisory features and has access to 2500-type functionality. Use only on terminal equipment that has a T1 interface and line side feature capability.

Quantity—Up to ten in the small Remote IPE main cabinet; up to six additional in small Remote IPE expansion cabinet.

NT5D51 Meridian Integrated Conference Bridge (MICB)

System hardware—Options 11E/11C/21/21E/51/51C/61/61C/71/81/81C and systems NT and XT upgraded to support IPE cards. Systems with X11 release 22 or higher support 32 ports per MICB card, while systems with X11 release 19 through 21 support only 16 ports per MICB card.

Purpose—The NT5D51 Meridian Integrated Conference Bridge (MICB) card provides up to 32 ports supporting bridge and conference scheduling for up to ten simultaneous conferences. For a single MICB card with 32 ports, there can be a maximum of ten simultaneous conferences with three or four participants in each conference, one conference with a maximum of 32 participants, or any combination in between. A customer can purchase a single MICB card with either a 12 port, 16 port, 24 port, or 32 port package.

Each MICB port is configured as a M2616 digital telephone set. The Meridian 1 system ACD function routes the incoming calls to an MICB card, where each MICB port is treated as an ACD agent. All ports on an MICB card belong to the same ACD queue and are treated as a pool of ports with equal status.

The MICB supports one chairperson per conference who can control conference activities by executing commands on his or her telephone set, such as dialing out to a new party outside of the conference, dropping all participants, and locking or unlocking the conference to prevent or allow new participants in the conference

The original MICB card (NT5D51AA) provides a command line interface (CLI) for scheduling and managing conferences as well as performing certain administrative and maintenance functions. The user accesses the CLI through a VT-100 terminal that is connected directly to the card, or through a terminal-emulating PC that is connected to the customer's LAN.

The MICB Release 2.0 card (NT5D51AB) provides both a browser user interface (BUI) and a telephone user interface (TUI) for scheduling and managing conferences; the CLI is still used for certain administrative and maintenance functions. The user accesses the BUI via a web browser and the LAN. The user access the TUI through any DTMF telephone.

Two MICB Release 2.0 cards (NT5D51AB) can be linked in a dual-card configuration to allow up to 62 participants in a single conference. In the dual-card configuration, one card acts as the primary card and the other acts as the secondary card. Two ports from the primary MICB card are used to transfer calls and open a talk path to the secondary card and are thus unavailable to host conference participants. The dual-card configuration can come in a 42 port, 50 port, or 62 port package.

For more information on the NT5D51 Meridian Integrated Conference Bridge card, please refer to *Meridian Integrated Conference Bridge: Description, Installation, Administration, and Maintenance (553-3001-102)*.

NT5D60AA CLASS Modem Card (XCMC)

System hardware—All systems equipped with a Meridian 1 IPE shelf and X11 release 23 or later.

Purpose—The NT5D60AA CLASS Modem card is introduced in X11 release 23 to support the Custom Local Area Signaling Services (CLASS) feature. The CLASS Modem card receives Calling Number and Calling Name Delivery (CND) data and time/date data from an NT8D01 Controller card and transmits it to a line port, such as a port on an Analog Line card, which delivers the CND data to a CLASS telephone set when presenting the set with a new call.

The CLASS Modem card is designed to plug into any one of the peripheral card slots of the IPE module. Supports up to 32 transmit-only modem resources using a DS30X interface. Up to 255 modems are may be configured per system.

For information about the CLASS: Calling Number and Name Delivery feature, please refer to the *X11 Features and Services* (553-3001-306). For administration and maintenance commands, see the *X11 Administration* (553-3001-311).

Uses +5v power supplied by the power converter in the IPE shelf.

Quantity—One per IPE shelf.

NT5G11 Meridian Integrated Call Assistant (MICA) Card

System hardware—Options 51C/61C/81C, SL-1 systems, NT, and XT upgraded to support IPE cards and Option 11E, 11C.

Purpose—Provides Intelligent Peripheral Equipment (IPE) that automatically answers incoming calls. Based on caller input and other information, the MICA card routes callers to their desired destination. MICA can be configured in several ways, from basic, menu-driven call handling to complex Automatic Caller Distribution (ACD) applications.

Systems with X11 Release 22 or higher support 32 MICA ports, while systems with X11 Release 19 through 21 support only 16 ports.

Quantity—One to eight Meridian Integrated Call Assistant Cards (MICA) per IPE module, and one to six per Option 11C.

NT5K02 Flexible Analog Line Card

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—Provides interface to up to 16 analog telephone sets (500/2500-type) equipped with either ground button recall switches, high-voltage Message Waiting lamps, or low-voltage Message Waiting LEDs. It performs several functions, some of which are:

- flexible transmission
- ground button operation
- low-voltage Message Waiting option
- card self-ID for auto-configuration

Application

- NT5K02AA high-voltage Message Waiting, analog line card typically used in Australia
- NT5K02DA ground button, low-voltage Message Waiting, analog line card typically used in France (see following description)
- NT5K02EA ground button, low-voltage Message Waiting, analog line card typically used in Germany
- NT5K02FA ground button, low-voltage Message Waiting, analog line card with 600 Ω termination (A/D -4 dB, D/A -1 dB)
- NT5K02GA same as NT5K02FA with a different loss plan (A/D -4 dB, D/A -3 dB)
- NT5K02HA ground button, low-voltage Message Waiting, analog line card typically used in Belgium
- NT5K02JA low-voltage Message Waiting, analog line card typically used in Denmark (see following description)
- NT5K02KA ground button, low-voltage Message Waiting, analog line card typically used in Netherlands (see following description)

- NT5K02LA & LB analog line card typically used in New Zealand (see following description)
- NT5K02MA ground button, low-voltage Message Waiting, analog line card typically used in Norway (see following description)
- NT5K02NA ground button, low-voltage message Waiting, analog line card typically used in Sweden
- NT5K02PA ground button, low-voltage Message Waiting, analog line card typically used in Switzerland
- NT5K02QA ground button, low-voltage Message Waiting, analog line card typically used in United Kingdom

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K02AB Flexible Analog Line Card (Australia)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—The NT5K02AB Flexible Analog Line Card with Message Waiting provides an interface for up to 16 analog (500/2500-type) telephone lines.

Application—The flexible analog line card can be installed in any PE slot that supports Intelligent peripheral equipment (IPE).

Features—The NT5K02AB Flexible Analog Line Card provides the following features:

- direct reporting of digits dialed (500 sets) by collecting 10 and 20 pps dial pulses
- telephone on hook and off hook detection
- relay for connecting an AC ringer
- automatic disconnection when the telephone set goes off hook
- flashing high-voltage 1 Hz Message Waiting signal

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K02DA Flexible Analog Line Card (France)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—The flexible analog line card provides an interface for up to 16 analog (500/2500-type) telephone lines.

Application—The NT5K02DA can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The flexible analog line card provides the following features:

- Message Waiting
- support of Digipulse or Digitone telephones
- telephone on hook and off hook detection based on loop current
- ground button detection
- relay for connecting an AC ringing signal
- collection of dial pulses (10 and 20 pps) from 500-type telephones
- analog to digital and digital to analog conversion for 16 analog telephone lines
- terminating impedance of French Complex Impedance
- software-selectable A-Law or μ -Law companding
- provision of line current to telephones (Line current is limited on short loops or under fault conditions. Otherwise, current varies according to loop length to allow automatic gain compensation.)

NT5K02JA Flexible Analog Line Card (Denmark)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—The flexible analog line card provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following:

- hookswitch flash detection
- ground button detection
- variable loop current to allow automatic gain compensation according to loop length
- a flashing low-voltage 1 Hz Message Waiting signal

Application—The NT5K02JA is used in Denmark. On Meridian 1 systems, the NT5K02JA can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K02KA Flexible Analog Line Card (Holland)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—The flexible analog line card with Message Waiting provides an interface for up to 16 analog (500/2500-type) telephone lines. The NT5K02KA Flexible Analog line card provides the following features:

- Message Waiting indicator flashing at a rate of 1 Hz at the telephone set
- support of Digipulse or Digitone telephones
- telephone on hook and off hook detection based on loop current
- ground button detection
- relay for connecting an AC ringing signal
- collection of dial pulses (10 and 20 pps) from 500-type telephones
- analog to digital and digital to analog conversion for 16 analog telephone lines
- terminating impedance of 600 ohms

- software-selectable A-Law or μ -Law companding
- provision of line current to telephones (Line current is limited on short loops or under fault conditions. Otherwise, current varies according to loop length to allow automatic gain compensation.)

Application—The NT5K02KA is used in Holland. It can be installed in any PE slot that supports Intelligent Peripheral Equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K02LB Flexible Analog Line Card (New Zealand)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—The NT5K02LB Flexible Analog Line Card with Message Waiting provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following features:

- telephone on hook and off hook detection
- ground button detection
- relay for connecting an AC ringer
- variable loop current to allow automatic gain compensation according to loop length
- flashing high-voltage 1 Hz Message Waiting signal

Application—The NT5K02LB Is used in New Zealand. It can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K02MA Flexible Analog Line Card (Norway)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—The flexible analog line card provides an interface for up to 16 analog (500/2500-type) telephone lines. It provides the following:

- hookswitch flash detection
- ground button detection
- variable loop current to allow automatic gain compensation according to loop length
- a flashing low-voltage 1 Hz Message Waiting signal

Application—The NT5K02MA is used in Norway. On Meridian 1 systems, the NT5K02MA can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K02NB Flexible Analog Line Card (Sweden)

System hardware—All

Purpose—The Flexible Analog Line Card provides an interface for up to 16 analog (500/2500-type) telephone lines.

Application—The NT5K02NB can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

There are two types of flexible analog line cards available for use in Sweden:

- the NT5K02NB line card with Message Waiting
- the NT5K96NB line card without Message Waiting

Both flexible analog line cards provide the following features:

- support of Digipulse or Digitone telephones
- telephone on hook and off hook detection based on loop current
- ground button detection
- relay for connecting an AC ringing signal
- collection of dial pulses (10 and 20 pps) from 500-type telephones
- analog to digital and digital to analog conversion for 16 analog telephone lines
- terminating impedance of 600 ohms
- software-selectable A-Law or μ -Law companding
- provision of line current to telephones (Line current is limited on short loops or under fault conditions. Otherwise, current varies according to loop length to allow automatic gain compensation.)

NT5K02SA Flexible Analog Line Card (Spain)

System hardware—All

Purpose—The NT5K02SA Flexible Analog Line Card provides an interface for up to 16 analog (500/2500-type) telephones lines.

Application—On Meridian 1 systems, the analog line card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The flexible analog line card provides the following features:

- analog to digital and digital to analog conversion for 16 analog telephone lines
- software-selectable A-Law or μ -Law companding
- card-identification for auto-configuration
- software-downloadable loss plan
- on hook/off hook detection
- connection for an AC ringing signal
- automatic disconnection when the telephone set goes off hook

- ground button detection
- direct reporting of digits dialed (500 sets) by collecting dial pulses (10 and 20 pulses per second)
- limited line current to telephone sets on short loops and under fault conditions; otherwise, loop current varies to allow automatic gain compensation according to loop length
- flashing low-voltage 1 Hz Message Waiting signal

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K07 Universal Trunk Card (Hong Kong)

System hardware—All

Purpose—The NT5K07 Universal Trunk Card provides the interface between a trunk facility and either an NT8D37 Intelligent Peripheral Equipment (IPE) Module or an NT8D11 Common/Peripheral Equipment (CE/PE) Module.

Application—The Hong Kong universal trunk card has eight units that can be configured as:

- central office (CO), foreign exchange (FX), and wide area telephone service (WATS)
- direct inward dial (DID) and direct outward dial (DOD)
- tie two-way dial repeating (2DR) and two-way outgoing automatic incoming dial (OAID)
- Paging (PAG)

Note: All-call zone paging is not supported.

- Recorded Announcement (RAN)

The universal trunk card also supports Music, Automatic Wake Up, and Direct Inward System Access (DISA). It does not support Message Registration or periodic pulse metering (PPM).

Table 3 is a matrix of the trunk types and signaling supported by the universal trunk card.

Table 3
Supported trunk type and signaling matrix

	CO/FX/ WATS	DID/ DOD	Tie	PAG	RAN
Loop start	yes	no (see Note)	no	no	no
Ground start	yes	no	no	no	no
Loop dial repeating	no	yes	yes	no	no
Loop OAID	no	no	yes	no	no
Note: DID trunks are loop dial repeating (loop start); however, programming trunks as loop start is not supported.					

On Meridian 1 systems, the universal trunk card can be installed in any PE slot that supports intelligent peripheral equipment.

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K09 Quad DTMF Receiver

System hardware—NT5K11 EEPE module

Purpose—Converts multifrequency dialing signals from a Digitone station to DC pulses suitable for processing in the system control in A-Law applications.

The NT5K09 Quad DTMF Receiver reroutes dial tone to and receives Digitone from up to four Digitone telephones simultaneously. It converts the received Digitone into digital outputs suitable to the SL-1.

The receiver differentiates between valid Digitone signals and speech or noise without using out-of-band signals. Four receivers are available on each pack.

Application—

- NT5K09AA typically used in Austria, Germany, France, Switzerland
- NT5K09BA typically used in Norway, Denmark
- NT5K09CA typically used in Belgium, Holland

Quantity—Two cards per NT5K11 EEPE module

NT5K10 Enhanced Dual Loop Peripheral Buffer

System hardware—NT5K11 EEPE module

Purpose—Interfaces to eight peripheral equipment cards and one or two network loops.

Quantity—Two cards per NT5K11 EEPE module

NT5K17 Direct Dial Inward (DDI) Trunk Card (UK)

System hardware—All

Purpose—Provides interface connecting the trunk facility to the NT8D37 IPE Module. It is equipped with an Intel 8052-type microprocessor that performs several functions, some of which are card identification, self-test, status reporting to the controller, and maintenance diagnostics.

The DDI provides eight analog trunks, each of which can be individually configured to operate as Direct Dial Inward units (DDI).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K17BA DDI Trunk Card (New Zealand)

System hardware—All

Purpose—The NT5K17BA Direct Dial Inward (DDI) Trunk Card provides the interface between the Meridian 1 system and up to eight analog DDI trunk lines. The NT5K17BA DDI card supports the following:

- pulse detection up to 22 pps
- dialing in the form of DTMF signaling or loop disconnect signaling
- New Zealand inverted dialing

Application—The NT5K17BA is used in New Zealand. It can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Each NT5K17BA DDI Trunk Card:

- allows trunk signaling type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides indication of card status on the faceplate LED
- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports the New Zealand loss plan

- provides termination impedance to match the New Zealand three-component complex network
- provides transhybrid balance matching against the New Zealand complex impedance
- provides analog to digital and digital to analog call path losses for DDI trunk units, values downloadable in the initial configuration stage

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K18 Flexible Central Office Trunk Card (UK)

System hardware—All

Purpose—Provides interface connecting the trunk facility to the NT8D37 IPE Module. It is equipped with an Intel 8052-type microprocessor that performs several functions, some of which are control of card operation, card identification, self-test, status reporting to the controller, and maintenance diagnostics.

The card interfaces eight central office trunks with the system and can be configured in software for either A-Law or μ -Law operation. Each interface provides the appropriate complex impedance to the line in compliance with UK regulatory specifications.

Each of these ports can be individually configured to operate as follows:

- Ground Start CO trunk
- Loop Disconnect Clear
- Loop Guarded Release

Each of the above signaling schemes is designed in compliance with the relevant UK specifications.

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K18BA Central Office Trunk Card (New Zealand)

System hardware—All

Purpose—The NT5K18BA Central Office Trunk Card has eight identical units that provide the interface between the Meridian 1 system and up to eight analog Central Office (CO) trunks. The trunk type of each unit is configured independently in the trunk data block (LD 14) as one of the following:

- central office, ground start
- central office, loop start

The NT5K18BA central office card supports Direct Inward System Access (DISA), battery supervision, and inverted dialing.

Application—The NT5K18BA is used in New Zealand. It can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K18BA Central Office Trunk Card:

- allows the trunk type to be configured on a per unit basis
- provides disabling of individual units or the entire card through software
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides complex terminating impedance in compliance with regulatory New Zealand standards
- provides complex balance impedance in compliance with regulatory New Zealand standards

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K19 Flexible E&M Trunk Card (UK)

System hardware—All

Purpose—Provides interface connecting the trunk facility to the NT8D37 IPE Module. It is equipped with an Intel 8052-type microprocessor that performs several functions, some of which are card identification, self-test, status reporting to the controller, and maintenance diagnostics.

The Flexible E&M provides four analog trunks, each of which can be individually configured to operate as follows:

- 4-wire E&M Type 1 tie trunk (DC5)
- 2-wire E&M TYPE 1 tie trunk (DC5)
- 2280 Hz tie trunk (AC15)
- Music trunk
- Paging trunk
- Emergency Recorder trunk

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K19BA E&M Tie Trunk Card (New Zealand)

System hardware—All

Purpose—The NT5K19BA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 tie trunk (DC5)
- Recorded Announcement trunk (RAN)
- Music trunk (MUS)
- Paging trunk (PAG)

The NT5K19BA E&M Tie Trunk Card supports New Zealand inverted dialing.

The NT5K19BA E&M Tie Trunk Card supports the following types of announcement machines:

- start mode announcement machines
- continuous mode announcement machines

Recorded announcers supported include the Cook Digital 4-channel announcer and the Audichron HQI-112.

Application—The NT5K19BA is used in New Zealand. It can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K19BA E&M Tie Trunk Card:

- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or μ -Law operation
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card; make break ratios are defined in software and downloaded during power up and by software commands
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M DC5 trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K20 Extended Tone Detector (UK)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—Provides eight channels of dual tone multifrequency (DTMF) and dial tone detection configurable on a per call basis. In addition, the type of dial tone to be detected is downloaded to the pack upon initialization. Dial tone is either 330 Hz plus 440 Hz or 50 Hz. The channels are assigned on the DS30X loop. There is one 8 kbps signaling channel provided for maintenance messaging and tone reporting.

Application—This tone detector has been replaced by the NT5K48 tone detector.

Quantity—Up to 16 cards per NT8D37 IPE module

NT5K21AA Extended Multifrequency Compelled Sender/Receiver (XMFC/XMFE)

System hardware—All Systems equipped with Meridian 1 IPE shelf

Purpose—Provides signaling across a trunk interface according to CCITT R2 signaling standard (XMFC). This pack also provides signaling across a trunk interface according to French Socotel standards (XMFE), and operates in either A-Law or μ -Law companding.

Application—The NT5K21AA has four units, each capable of handling one call.

Quantity—Refer to *System Engineering* (553-3001-151) for engineering details

NT5K36AA DID/DOD Trunk Card (Germany)

System hardware—All

Purpose—The NT5K36AA Direct Inward Dial/Direct Outward Dial Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

The NT5K36AA DID/DOD card supports three central office types: IKZ1, IKZ2, and IKZ3.

Each unit on the NT5K36AA DID/DOD card operates as a DID/DOD trunk and supports 16 kHz pulse detection. There are three modes of operation for the NT5K36AA circuit card:

- outgoing calls placed by Meridian 1
- short distance incoming calls from the central office
- long distance incoming calls from the central office

Application—The NT5K36AA is used in Germany. It can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K36AB DID/DOD Trunk Card (Austria/Germany)

System hardware—All

Purpose—The NT5K36AB Direct Inward Dial/Direct Outward Dial Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

Application—It can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

Each NT5K36AB DID/DOD Trunk Card:

- indicates self-test status during an automatic or manual self-test (self-test pass is indicated on the faceplate LED)
- converts transmission signals from analog to digital and from digital to analog for up to four audio paths

- disables individual circuits or the entire board under software control
- provides internal 16 kHz pulse detection
- provides transmission performance according to German specifications
- provides the correct signaling impedances and voltages to operate with the German central office

NT5K48 Tone Detector Card (Global)

System hardware—All

Purpose—The NT5K48 Global Tone Detector circuit card provides tone detection for dual tone multifrequency (DTMF) or dial tone detection (DTD).

The NT5K48 Global Tone Detector circuit card:

- provides eight channels of DTMF or dial tone detection
- provides both first stage dial tone detection and second stage DTD on a call-by-call basis

Note: The NT5K48 Tone Detector remains dedicated to the call while the connecting process is progressing. Once the call is connected, the tone detector is released. It does not detect dial tone after the call is established.

- supports both A-Law and μ -Law companding
- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- provides for hardware self-test
- allows country-specific DTMF and dial tone characteristics to be downloaded from software

Application—The Global Tone Detector circuit card replaces the NT5K20 tone detector and operates in the following countries:

- Australia
- Denmark
- France

- Germany
- Holland
- Italy
- New Zealand
- Norway
- Spain
- Sweden
- Switzerland
- United Kingdom

Note: The NT5K48 is configured in software. There are no switch settings on the card.

Quantity—Up to 16 cards per NT8D37 IPE module

NT5K48BA Tone Detector Card (Denmark)

System hardware—All

Purpose—The NT5K48BA Tone Detector circuit card provides tone detection for either dual tone multifrequency (DTMF) or dial tone detection (DTD). It does the following:

- provides eight channels of tone detection configurable on a call connection basis
- DTD configurable on a call connection basis

Note: The NT5K48 Tone Detector operates during call setup only. When a connection is established, it drops out of the call.

- allows country-specific DTMF and dial tone characteristics to be downloaded from software (using overlay 97)

Application—The NT5K48BA tone detector is designed for use in Denmark.

Quantity—Up to 16 cards per NT8D37 IPE module

NT5K48DA Tone Detector Card (Norway)

System hardware—All

Purpose—The NT5K48 Tone Detector circuit card provides tone detection for either dual tone multifrequency (DTMF) or dial tone detection (DTD). The NT5K48DA tone detector is designed for use in Norway. It does the following:

- provides eight channels of tone detection configurable on a call connection basis
- provides both first stage dial tone detection and second stage DTD configurable on a call connection basis

Note: The NT5K48 Tone Detector operates during call setup only. When a connection is established, it drops out of the call.

- allows country-specific DTMF and dial tone characteristics to be downloaded from software (using overlay 97)

Application—The NT5K48DA is designed for use in Norway.

Quantity—Up to 16 cards per NT8D37 IPE module

NT5K50AA E&M Tie Trunk Card (France)

System hardware—All

Purpose—The NT5K50AA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

Application—The NT5K50AA can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K50AA E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M BPO (Type V)
- 4-wire E&M Type II
- Recorded Announcement (RAN) trunk
- Paging (PAG) trunk
- Music (MUS) trunk

The NT5K50AA E&M Tie Trunk Card:

- has four switch settings (one per unit) used to select BPO (Type V) E&M signaling.

Note: Systems using Phase 8B or later software can select BPO signaling in overlay 14.

- supports wink, immediate start, or delay dial signaling
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or μ -Law operation
- enables and disables individual units or the entire card under software control
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

NT5K70AA Central Office Trunk Card (Finland/Germany)

System hardware—All

Purpose—The NT5K70AA Central Office Trunk Card supports eight analog central office (CO) trunks. It provides the following:

- loop start operation
- 16 kHz periodic pulse metering (PPM)

Application—The NT5K70AA is designed for use in Germany. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K70AB Central Office Trunk Card (Austria/Finland/Germany)

System hardware—All

Purpose—The NT5K70AB Central Office Trunk Card for Austria provides the interface between the Meridian 1 system and up to eight analog central office (CO) trunks.

Application—The NT5K70AB Trunk Card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K70AB Central Office Trunk Card:

- supports internal 16 kHz periodic pulse metering (PPM)
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law companding
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 2 dB transmission pads for long/short line operation
- provides termination and transhybrid balance impedance to match the German complex impedance network

- provides busy tone detection on a per unit basis, when configured to do so in software
- provides 100 ms flashhook for feature access
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format

NT5K71AA Central Office Trunk Card (Germany)

System hardware—All

Purpose—The NT5K71AA Central Office Trunk Card is based on the NT5K70AA Trunk Card, but it supports four analog central office (CO) trunks instead of eight. The NT5K71AA provides the following:

- loop start operation, and
- 16 kHz periodic pulse metering (PPM)

Application—The NT5K71AA is designed for use in Germany. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K71AB Central Office Trunk Card (Austria/Germany)

System hardware—All

Purpose—The NT5K71AB Central Office Trunk Card is the same as the NT5K70AB Trunk Card, but it connects up to four analog trunks instead of eight.

Application—The NT5K71AB Trunk Card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K71AB Central Office Trunk Card:

- supports internal 16 kHz periodic pulse metering (PPM)
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law companding
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 2 dB transmission pads for long/short line operation
- provides termination and transhybrid balance impedance to match the German complex impedance network
- provides busy tone detection on a per unit basis, when configured to do so in software
- provides 100 ms Flashhook for feature access
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format

NT5K72AA E&M Tie Trunk Card (Austria/Finland/Germany)

System hardware—All

Purpose—The NT5K72 E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

Recorded announcers supported include the Cook Digital 4-channel announcer, the Audichron HQI-112, and the Kreutler-Announcer.

Application—The NT5K72AA is designed for use in Germany. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K82AA Central Office Trunk Card (Switzerland)

System hardware—All

Purpose—The NT5K82AA Central Office Trunk Card supports eight analog central office (CO) trunks. It provides the following:

- loop start operation
- 12 kHz periodic pulse metering (PPM)
- a choice between the old Swiss loss plan and the new Swiss loss plan, depending on the hardware configuration of the system.
- trunk type to be configured on a per unit basis
- individual units or the entire board to be disabled by software
- software-selectable A-Law or μ -Law companding
- self-test status during an automatic or manual self-test
- card-identification for auto-configuration and for determining the serial number and firmware level of the card
- transmission signals from analog to digital and from digital to analog
- the new Swiss loss plan
- adjustable transmission pads for long or short line operation
- termination and transhybrid balance impedance to match the Swiss complex impedance network
- direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format
- loop break detection and supervision on a per unit basis
- barring detection and supervision on a per unit basis
- busy tone detection and supervision on a per unit basis

Application—The NT5K82AA is designed for use in Switzerland. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K82BA/CA Central Office Trunk Card (Australia)

System hardware—All

Purpose—The central office trunk card for Australia comes in two versions: NT5K82BA and NT5K82CA. The NT5K82CA card has an on-board 12 kHz PPM pulse detector, while the NT5K82BA card does not. The NT5K82BA card counts 50 Hz pulses that are detected using external filters.

Application—The central office trunk card has eight units and:

- supports loop start signaling
- allows the trunk type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law or μ -Law companding
- indicates self-test status during an automatic or manual self-test
- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- downloads transmit and receive losses to the B34 codec for operation over long and short lines
- provides termination and transhybrid balance impedance to match the Australian complex impedance network
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format
- provides Autoguard fault detection to prevent a faulty trunk from being seized on an outgoing call
- provides Fastguard (battery reversal) detection on incoming calls prior to ringing
- supports dynamic loss switching on a call by call basis
- provides busy tone detection to support far end release

On Meridian 1 systems, the central office trunk card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K82HA Central Office Trunk Card (Belgium)

System hardware—All

Purpose—The NT5K82HA Central Office Trunk Card provides the interface between the Meridian 1 system and up to eight analog central office (CO) trunks.

Application—This pack can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K82HA card has an on-board 12 kHz PPM pulse detector that counts 50 Hz pulses using external filters.

The NT5K82HA Central Office Trunk Card:

- provides conversion for eight audio paths
- provides software-selectable A-Law and μ -Law operations
- provides indication of board status with faceplate-mounted LED
- provides for disabling of individual units or the entire board under software or XPEC control
- provides loopback of pulse code modulation (PCM) signals to DS30X for testing and diagnostic purposes
- indicates self-test status with faceplate LED
- provides termination impedance to match Belgian complex impedance Z1
- provides transhybrid balance matching against Belgian complex impedance Z1
- provides for loss pads (analog to digital and digital to analog) as per the Belgian loss plan and call path set-up
- meets the Belgian loss plan and provide a base for future loss plan change by use of the B34 Codec with software-selectable loss pads (phase 8B software)

- corrects signaling impedances to operate with the Belgian central office
- supports multifrequency compelled (MFC) signaling when used with the NT5K21 XMFC Sender/Receiver Pack

NT5K83AA E&M Tie Trunk Card (Spain/Switzerland)

System hardware—All

Purpose—The NT5K83AA E&M Tie Trunk supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

Announcement machines supported include the Cook Digital 4-channel announcer and the Audichron HQI-112.

Application—The NT5K83AA is designed for use in Switzerland. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K83AA E&M Tie Trunk Card:

- is equipped with four trunk units
- converts transmission signals from analog to digital and from digital-to-analog
- provides software-selectable A-Law or μ -Law operation
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card (make break ratios are defined in software and downloaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M trunk circuits

- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K83BA E&M Tie Trunk Card (Denmark)

System hardware—All

Purpose—The NT5K83BA E&M Tie Trunk supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

The NT5K83BA E&M Tie Trunk provides the choice between the old Danish loss plan and the new Danish loss plan. The old plan is chosen when existing peripheral equipment (EPE) or enhanced existing peripheral equipment (EEPE) is used on the system. The new loss plan is chosen when only intelligent peripheral equipment (IPE) is used.

Application—The NT5K83BA is designed for use in Denmark. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K83CA E&M Tie Trunk Card (Norway)

System hardware—All

Purpose—The NT5K83CA E&M Tie Trunk supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2 trunk
- Recorded Announcement (RAN) trunk
- Music on Hold (MUS) trunk
- Paging (PAG) trunk

The NT5K83CA E&M Tie Trunk provides the choice between the old Norwegian loss plan and the new Norwegian loss plan. The old plan is chosen when existing peripheral equipment (EPE) or enhanced existing peripheral equipment (EEPE) is used on the system. The new loss plan is chosen when only intelligent peripheral equipment (IPE) is used.

Application—The NT5K83CA is designed for use in Norway. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K83CA E&M Tie Trunk Card:

- is equipped with four trunk units
- converts transmission signals from analog to digital and from digital to analog
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card (make break ratios are defined in software and down loaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M trunk circuits
- provides Paging (PAG), Recorded Announcement (RAN), and Music interfaces

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K83DA E&M Tie Trunk Card (Holland)

System hardware—All

Purpose—The NT5K83DA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks. Each trunk circuit can be individually configured as:

- 2-wire E&M BPO (Type V)
- 4-wire E&M Type I, Type II, BPO (Type V)
- Cept L1 2280 Hz tie trunk (AC15 signaling in the UK)
- Recorded Announcement (RAN) trunk
- Paging (PAG) trunk
- Music (MUS) trunk

The NT5K83DA E&M Tie Trunk Card:

- has four switch settings (one per unit) used to select BPO (Type V) E&M signaling (Phase 8B software allows the signaling to be service changeable through overlay 14, eliminating the need to set the hardware switches.)
- supports wink, immediate start, or delayed dialing signaling

The NT5K83DA E&M Tie Trunk Card supports the following types of announcement machines:

- start mode announcement machines
- continuous mode announcement machines

Recorded announcement machines supported include the Cook Digital 4-channel announcer and the Audichron HQI-112.

Application—The NT5K83DA is designed for use in Holland. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K83DA E&M Tie Trunk Card:

- supports wink, immediate start, or delay dial signaling
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or μ -Law operation
- enables and disables individual units or the entire card under software control
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination and transhybrid balance matching against 600 ohms for 2-wire E&M trunk circuits
- provides termination against 600 ohms for 4-wire and CEPT L1 E&M trunk circuits
- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K83EA E&M Tie Trunk Card (Australia)

System hardware—All

Purpose—The NT5K83EA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

Application—The E&M trunk card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K83EA E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type C2 Earth-off idle (configured as Type 1 in software)
- Recorded Announcement trunk (RAN)
- Music trunk (MUS)
- Paging trunk (PAG)

The NT5K83EA E&M Tie Trunk Card:

- downloads transmit and receive losses to the B34 codec
- supports dynamic loss switching on a call-by-call basis
- converts transmission signals from analog to digital and from digital to analog
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card. (make break ratios are defined in software and down loaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination against 600 ohms for 4-wire E&M trunk circuits
- provides Paging (PAG), Recorded Announcement (RAN), and Music interfaces

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K83FA E&M Tie Trunk Card (Sweden)

System hardware—All

Purpose—The NT5K83FA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

Application—The NT5K83FA can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K83FA E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 2-wire E&M BPO (Type V)
- 4-wire E&M Type II
- Recorded Announcement (RAN) trunk
- Paging (PAG) trunk
- Music (MUS) trunk

The NT5K83FA E&M Tie Trunk Card:

- has four switch settings (one per unit) used to select BPO (Type V) E&M signaling.

Note: Systems using Phase 8B or later software can select BPO signaling in overlay 14.

- supports wink, immediate start, or delay dial signaling
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or μ -Law operation
- enables and disables individual units or the entire card under software control
- provides indication of card status on the faceplate LED
- allows the trunk type to be configured on a per unit basis in software
- provides termination and transhybrid balance matching against Sweden Complex impedance for 2-wire E&M trunk circuits
- provides termination against 600 ohms for 4-wire trunk circuits

- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

NT5K83GA E&M Tie Trunk Card (Italy)

System hardware—All

Purpose—The NT5K83GA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

Application—It can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K83GA E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 4-wire E&M Type 1 and 2
- 2-wire E&M Type 1, 2, and 5 (BPO)
- Recorded Announcement (RAN) trunk
- Music trunk (MUS)
- Paging trunk (PAG)

The NT5K83GA E&M Tie Trunk Card:

- is equipped with four trunk units
- converts transmission signals from analog to digital and from digital to analog
- provides software-selectable A-Law or μ -Law operation
- enables and disables individual units or the entire card under software control
- provides outpulsing on the card (make break ratios are defined in software and downloaded during power up and by software commands)
- provides indication of card status from self-test diagnostics on the LED
- allows the trunk type to be configured on a per unit basis in software
- provides 600 ohm termination for 2- and 4-wire E&M trunk circuits

- provides flexible transmission for various loss plans
- provides Paging (PAG), Recorded Announcement (RAN), and Music (MUS) interfaces

NT5K83HA E&M Tie Trunk Card (Belgium)

System hardware—All

Purpose—The NT5K83HA E&M Tie Trunk Card provides the interface between the Meridian 1 system and up to four analog trunks.

Application—The NT5K83HA can be installed in any PE slot that supports Intelligent Peripheral Equipment (IPE).

The NT5K83HA E&M Tie Trunk Card supports four analog trunks. Each trunk circuit can be individually configured as:

- 2- and 4-wire E&M Transmission
- Type I, Type II and Type V E&M signaling
- Recorded Announcement (RAN) trunk
- Voice Paging Trunk features

The card supports these features on a per unit basis.

The NT5K83HA E&M Tie Trunk Card:

- provides analog to digital and digital to analog conversion for four audio paths
- allows the trunk type to be configured on a per channel basis
- provides software-selectable A-Law and μ -Law operation
- indicates self-test status with faceplate LED
- provides for disabling of individual units or the entire board under software or XPEC control
- provides outpulsing on the card; the make break ratios are software downloadable in the initial configuration stage
- provides loopback of pulse code modulation (PCM) signals to DS30X for testing and diagnostic purposes

- provides termination against 600 ohms for 4-wire E&M trunk circuits
- provides termination and transhybrid balance matching against 600 ohms for 2-wire E&M trunk circuits
- provides a PAG (Voice Paging) interface
- provides a RAN (Recorded Announcement/Music) interface
- provides a Radio Paging interface
- provides flexible transmission for various loss plans
- interfaces each of the four PCM digital signals to one DS30X channel in A10 format
- sends transmit and receive SSD signaling messages over a DS30X signaling channel in A10 format

NT5K84AA Direct Inward Dial (DID) Trunk Card (Switzerland)

System hardware—All

Purpose—The NT5K84AA Direct Inward Dial (DID) Trunk Card supports eight analog trunks. Each trunk circuit operates as a DID trunk.

The NT5K84AA DID trunk provides a choice between the old Swiss loss plan and the new loss plan. The old plan is used when existing peripheral equipment (EPE) or enhanced existing peripheral equipment (EEPE) is present on the system. The new loss plan is used when only intelligent peripheral equipment (IPE) is present.

Application—The NT5K84AA is designed for use in Switzerland. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Each NT5K84AA DID Trunk Card:

- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports the new Swiss loss plan
- provides adjustable transmission pads for long line or short line operation
- provides termination and transhybrid balance impedance to match the Swiss complex impedance network
- provides the correct signaling impedances and voltages to operate with the Swiss central office
- supports multifrequency compelled (MFC) signaling when used with the MFC Sender/Receiver card (NT5K21)

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K84BA Direct Dial Inward (DDI) Trunk Card (Australia)

System hardware—All

Purpose—The NT5K84BA Direct Dial Inward (DDI) Trunk Card provides the interface between the Meridian 1 system and up to eight analog DDI trunk lines.

Application—The direct inward dial trunk card can be installed in any slot that supports intelligent peripheral equipment (IPE).

Each NT5K84BA DDI Trunk Card:

- allows the trunk signaling type to be configured on a per unit basis
- indicates self-test status during an automatic or manual self-test (self-test pass is indicated on the faceplate LED)
- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports dynamic loss switching on a call by call basis
- provides termination impedance to match the Australian three-component complex network
- provides transhybrid balance matching against the Australian complex impedance
- provides analog to digital and digital to analog call path losses for DDI trunk units, values downloadable in the initial configuration stage

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K84HA Direct Inward Dial (DID) Trunk Card (Belgium)

System hardware—All

Purpose—The NT5K84HA Direct Inward Dial (DID) Trunk Card provides the interface between the Meridian 1 system and up to eight analog DID trunk lines.

Application—The NT5K84HA can be installed in any slot that supports intelligent peripheral equipment (IPE).

The NT5K84HA supports the Belgian Direct Inward Dialing Signaling protocol.

Each NT5K84HA DID Trunk Card:

- provides analog to digital and digital to analog conversion for eight audio paths
- uses software-selectable A-Law and μ -Law operation
- indicates self-test status with faceplate LED
- provides for disabling of individual units or the entire board under software or XPEC control
- provides loopback of pulse code modulation (PCM) signals to DS30X for testing and diagnostic purposes
- provides termination impedance to match Belgian complex impedance Z_1
- provides transhybrid balance matching against Belgian complex impedance Z_1
- provides for loss pads (analog to digital and digital to analog) as per the Belgian loss plan and call path setup
- meets the Belgian loss plan and provides a base for future loss plan change by use of the B34 codec with software-selectable loss pads (phase 8B software)
- corrects signaling impedances to operate with the Belgian central office
- supports multifrequency compelled (MFC) signaling when used with the NT5K21 XMFC Sender/Receiver pack

NT5K90AA Central Office Trunk Card (Denmark)

System hardware—All

Purpose—The NT5K90AA Central Office Trunk Card supports eight analog central office (CO) trunks. It provides:

- loop start operation
- supervised loop start signaling using CO polarity reversals (ARF signaling)
- Direct Inward System Access (DISA), but only when configured in the supervised loop start signaling mode
- a choice between the old Danish loss plan and the new Danish loss plan, depending on the hardware configuration of the system.
- busy tone detection (detection of far end release)
- 12 kHz periodic pulse metering (PPM), also referred to as subscriber pulse metering (SPM)

Application—The NT5K90AA is designed for use in Denmark. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K90BA Central Office Trunk Card (Denmark)

System hardware—All

Purpose—The NT5K90BA Central Office Trunk Card is the same as the NT5K90AA Trunk Card, but does not support periodic pulse metering (PPM) or busy tone detection.

Application—The NT5K90BA is designed for use in Denmark. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K92AA Direct Inward Dial Auto Answer Circuit (DID Tester) (Austria/France/Germany/Switzerland)

System hardware—All

Purpose—The NT5K92AA Direct Inward Dial (DID) Auto Answer Circuit is used to test the condition of the DID lines on a Meridian 1 system. It does the following:

- answers an incoming DID call
- holds the call for a predetermined length of time
- sends tones or remains silent
- disconnects the call

NT5K93AA Central Office Trunk Card (Norway)

System hardware—All

Purpose—The NT5K93 Central Office Trunk Card provides the interface between the Meridian 1 system and up to eight analog Central Office (CO) trunks.

Application—The NT5K93AA is designed for use in Norway. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K93AA Central Office Trunk Card:

- provides loop start operation
- is equipped with eight trunk units
- allows the trunk type to be configured on a per unit basis
- provides software-selectable A-Law or μ -Law companding
- indicates self-test status during an automatic or manual self-test
- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- provides a choice between old or new Norwegian loss plans

- provides adjustable transmission pads for long/short line operation
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K93BA Central Office Trunk Card (Norway)

System hardware—All

Purpose—The NT5K93BA Central Office Trunk Card is the same as the NT5K93AA Central Office Trunk Card, but does not support the periodic pulse metering (PPM) feature.

Application—The NT5K93BA is designed for use in Norway. On Meridian 1 systems, it can be installed in any peripheral equipment (PE) slot that supports intelligent peripheral equipment (IPE).

The NT5K93BA Central Office Trunk Card:

- provides loop start operation
- is equipped with eight trunk units
- allows the trunk type to be configured on a per unit basis
- provides software-selectable A-Law or μ -Law companding
- indicates self-test status during an automatic or manual self-test
- provides card-identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- provides a choice between old or new Norwegian loss plans
- provides adjustable transmission pads for long/short line operation

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K96JA Flexible Analog Line Card (Denmark)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—The NT5K96JA Flexible Analog Line Card is the same as the NT5K02JA line card, but does not have the Message Waiting feature.

Application—The NT5K96JA is designed for use in Denmark.

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K96KA Flexible Analog Line Card (Holland)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—The NT5K96KA line card is exactly the same as the NT5K02KA Analog line card, but does not support a Message Waiting indicator.

Application—The NT5K96KA is designed for use in Holland.

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K96MA Flexible Analog Line Card (Norway)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—The NT5K96MA Flexible Analog Line Card is the same as the NT5K02MA line card, but it does not have the Message Waiting feature.

Application—The NT5K96MA is designed for use in Norway.

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K96NB Flexible Analog Line Card (Sweden)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—The NT5K96NB Flexible Analog Line Card is the same as the NT5K02NB line card, but it does not have the Message Waiting feature.

Application—The NT5K96NB is designed for use in Sweden.

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K96SA Flexible Analog Line Card (Spain)

System hardware—All systems equipped with a Meridian 1 IPE shelf.

Purpose—The NT5K96SA Flexible Analog Line Card is the same as the NT5K02SA line card, but it does not have the Message Waiting feature.

Application—The NT5K96SA is designed for use in Spain.

Quantity—Up to 16 cards per NT8D37 IPE Module

NT5K99AA/BA Central Office Trunk Card (Spain)

System hardware—All

Purpose—The NT5K99AA and NT5K99BA Central Office Trunk Cards provide the interface between the Meridian 1 system and up to eight analog central office (CO) trunks. The NT5K99AA card supports internal 12 kHz PPM but the NT5K99BA card does not.

Application—On Meridian 1 systems, the central office trunk card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NT5K99AA and NT5K99BA Central Office Trunk Cards:

- provide loop start operation
- provide battery reversal detection
- are equipped with eight trunk units
- allow the trunk type to be configured on a per unit basis
- allow individual units or the entire board to be disabled by software
- provide software-selectable A-Law companding
- indicate self-test status during an automatic or manual self-test
- provide card-identification for auto-configuration and for determining the serial number and firmware level of the card
- convert transmission signals from analog to digital and from digital to analog
- provide 2 dB transmission pads for operation over long or short lines

- provide termination and transhybrid balance impedance to match the Spanish complex impedance network
- provide direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format
- provide detection and reporting of battery reversals from the central office

NT6D70BA S/T Interface Line Card (SILC)

System hardware—All

Purpose—Provides eight S/T four-wire full duplex interfaces that are used to connect ISDN BRI compatible terminals over DSLs to the Meridian 1 system. Each S/T interface provides two B-channels and one D-channel and supports a maximum of eight physical connections that can link up to 20 logical terminals on one DSL. The main functions are to:

- provide eight ISDN S/T interfaces conforming to ANSI, CCITT, INS-NET, and ETSI standards
- support point-to-point and multipoint DSL terminal connections
- execute instructions received from the Meridian 1 CPU to configure and control the S/T interfaces
- provide channel mapping between ISDN Basic Rate format 2B+D and IPE bus format
- multiplex four D-channels onto one 64 kbps network timeslot
- provide 2 watts of power to terminals on a DSL
- support S/Q layer 1 maintenance channels between a terminal and a network terminator
- perform activation and deactivation of DSLs
- provide loopback control of DSLs

The SILC is housed in the IPE module and communicates with the MISP through the peripheral controller card.

Quantity—Up to 15 per module. Refer to *ISDN Basic Rate Interface: Product Description* (553-3901-100) for capacity requirements.

NT6D71 U Interface Line Card (UILC)

System hardware—All

Purpose—Provides eight two-wire full duplex U interfaces that are used to connect ISDN BRI-compatible terminals over DSLs to the Meridian 1 system. Each U interface provides two B-channels and one D-channel and supports one physical termination. The length of a DSL should not exceed 5.6 km (16,404 ft).

The main functions are to:

- provide eight ISDN U interfaces conforming to ANSI standards
- support point-to-point DSL terminal connections
- provide channel mapping between ISDN BRI and IPE bus formats
- support M-channel functions as specified by ANSI standards
- multiplex four D-channels onto one 64 kbps timeslot
- support maintenance information messages
- perform activation and deactivation of DSLs
- provide loopback control of DSLs

The UILC is housed in the IPE module and communicates with the MISP over the peripheral controller card, which is also housed in the IPE Module.

Quantity—Up to eight per module. Refer to *ISDN Basic Rate Interface: Product Description* (553-3901-100) for capacity requirements.

NT6D72 Basic Rate Concentrator Signaling Card

System hardware—Options 51C/61C/81C (minimum X11 release 18)

Purpose—The BRSC processes signaling messages from ISDN BRI line cards and transmits the resulting messages to the MISP. It also separates D-channel Packet Switched Data (DPSD) from signaling information and routes it to the packet handler.

Quantity—One per each IPE module with BRI line cards; see *ISDN Basic Rate Interface: Product Description* (553-3901-100) for capacity requirements

NT7D16 Data Access Card

System hardware—All

Purpose—Provides interface to up to six data units, or ports, with each port operating in either RS-232-C or RS-422 mode. Used in the system to provide connections for data terminal equipment (DTE) or data communications equipment (DCE) such as terminals, personal computers, modems, and mainframe host computers.

Quantity—Up to 16 cards per NT8D37 IPE Module; up to 10 cards per NT8D11 CE/PE Module

NT7R52 Remote Carrier Interface Card

System hardware—Carrier Remote IPE floor-standing module and wall-mounted cabinet

Purpose—Provides a primary interface and control function between the NT1R51 Local Carrier Interface Card and the Carrier Remote IPE site. Each controller card serves up to 16 IPE cards. The controller card is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics.

Quantity—One per NT8D37 IPE Module at the Carrier Remote IPE site

NT8D01 Controller Card

System hardware—Options 51C/61C/81C

Purpose—Provides a primary interface and control function between the NT8D04 Superloop Network Card and the IPE Module. Each controller card serves up to 16 IPE cards. The controller card is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics.

The NT8D01BC Controller-4 Card (formerly NT8D01BA) interfaces with up to four superloop network cards.

The NT8D01BD Controller-2 Card (formerly NT8D01BB) interfaces with up to two superloop network cards.

Quantity—One per NT8D37 IPE Module

NT8D01AC Controller-4 Card

System hardware—All

Purpose—Provides a primary interface and control function between the superloop network card and the IPE module over up to four 1.024 Mbps superloops. Each Controller-4 card serves up to 16 IPE cards.

The Controller-4 card interfaces with up to four NT8D04AA Superloop Network Cards. It is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics, thus off-loading the system CPU.

Quantity—One per NT8D37 IPE Module

NT8D01AD Controller-2 Card

System hardware—All

Purpose—Provides a primary interface and control function between the superloop network card and the IPE module over up to two 10.24 Mbps superloops. Each Controller-2 card serves up to 16 IPE cards.

The Controller-2 card interfaces with up to two NT8D04AA Superloop Network Cards. It is equipped with a Motorola 68000-type microprocessor that performs some local call processing and maintenance diagnostics, thus off-loading the system CPU.

Quantity—One per NT8D37 IPE Module

NT8D02 Digital Line Card

System hardware—All

Purpose—Provides interface to up to 16 digital integrated voice and data sets for a total of 32 ports. It is equipped with an 8051-family microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

See *Line Cards: Description* (553-3001-105) for more details.

Quantity—Up to 16 cards per NT8D37 IPE Module; up to 10 cards per NT8D11 CE/PE Module

NT8D03 Analog Line Card

System hardware—All

Purpose—Replaced by NT8D09 Analog Message Waiting Line Card as of January 1992.

Provides interface to up to 16 analog telephones (500/2500). It is equipped with an 8051-family microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

Quantity—Up to 16 cards per NT8D37 IPE Module; up to 10 cards per NT8D11 CE/PE Module

NT8D09 Analog Message Waiting Line Card

System hardware—All

Purpose—Provides interface to up to 16 analog telephones (500/2500) with Message Waiting lamp feature. It is equipped with an 8051-family microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

See *Line Cards: Description* (553-3001-105) for more details.

Quantity—Up to 16 cards per NT8D37 IPE Module; up to 10 cards per NT8D11 CE/PE Module

NT8D14 Universal Trunk Card

System hardware—All

Purpose—Provides interface to up to eight trunk facilities in A-Law or μ -Law applications. Each trunk unit is independently configured to operate as a:

- central office (CO), foreign exchange (FX), or wide area telephone service (WATS) trunk
- direct inward dialing (DID) trunk
- two-way tie trunk
- Recorded Announcement (RAN) trunk
- Paging trunk

Each unit also provides the following signaling operation:

- ground start (CO/FX/WATS trunks)
- loop start (CO/FX/WATS trunks) (minimum vintage BA)
- loop dial repeating (DR) (DID and two-way tie trunks)
- loop outgoing automatic, incoming dial (OAID) (two-way tie trunks)
- continuous operation, pulse start, or level start (RAN trunks)

Trunk unit termination and balance impedance is selectable to 600 or 900 ohms, and balance or complex: 3COM1 or 3COM2 (minimum vintage BA for 3COM2).

The universal trunk card also supports Music, Automatic Wake Up, and Direct Inward System Access (DISA) features.

The card is equipped with a microprocessor that performs functions including:

- control of card operation
- card identification
- self-test

- status reporting to the controller
- maintenance diagnostics

The card complies with CSA Standard C82.2 No. 0.7-M1985 and EIA Standard 464A.

See *Trunk Cards: Description* (553-3001-106) for more details.

Quantity—One per eight trunks; up to 16 cards per NT8D37 IPE Module; up to ten cards per NT8D11 CE/PE Module

NT8D15 E&M Trunk Card

System hardware—All

Purpose—Provides interface to up to four analog trunk facilities in A-Law and μ -Law applications. Provides interface connecting the trunk facility to the NT8D37 IPE Module. Each trunk unit is individually configured to operate as:

- two-wire E&M Type I signaling trunk
- four-wire E&M trunk
 - Type I or Type II signaling
 - Duplex (DX) signaling
- paging trunk

The card is equipped with a microprocessor that performs functions including:

- control of card operation
- card identification
- self-test
- status reporting to the controller
- maintenance diagnostics

The card complies with CSA Standard C82.2 No. 0.7-M1985 and EIA Standard 464A.

See *Trunk Cards: Description* (553-3001-106) for more details.

Quantity—One per four trunks; up to 16 cards per NT8D37 IPE Module; up to ten cards per NT8D11 CE/PE Module.

Application

- NT8D15AA μ -Law only
- NT8D15AF μ -Law/A-Law software-selectable

NT8D16 Digitone Receiver Card

System hardware—Options 51C/61C/81C

Purpose—Provides eight channels of dual tone multifrequency (DTMF) detection. These channels are assigned on the DS30X loop. There is one 8 kbps signaling channel provided for maintenance messaging and tone reporting.

The NT8D16 Digitone Receiver Card allows access to the filters for parameter alterations to service different environments (for example, international applications).

Quantity—See *System Engineering* (553-3001-151) for engineering details.

NT9C14AA CO/FX/WATS Trunk Card

System hardware—All

Software generic—All

Purpose—Same as QPC527 but the output PAD value has been altered for the China market.

NTAG03AA Central Office Trunk Card (Holland)

System hardware—All

Purpose—Provides the interface between the Meridian 1 system and up to eight analog central office (CO) trunks.

Application—The NTAG03AA is designed for use in Holland. On Meridian 1 systems, it can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NTAG03AA Central Office Trunk Card:

- supports A-type signaling and 50 Hz periodic pulse metering (PPM) detection
- receives tone detection information from the tone detector card
- provides busy tone detection (far end release)
- allows the trunk type to be configured on a per unit basis
- provides disabling of individual units or the entire card through software
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 600 ohm terminating impedance in compliance with regulatory Holland standards
- provides complex balance impedance in compliance with regulatory Holland standards

Quantity—Up to 16 cards per NT8D37 IPE Module

NTAG04AA Central Office/Direct Inward Dial Trunk Card (Holland)

System hardware—All

Purpose—Provides the interface between the Meridian 1 system and up to eight analog trunks. The NTAG04AA CO/DID Trunk Card has eight units, each of which can be individually configured as:

- central office incoming/outgoing trunk
- direct inward dial/direct outward dial trunk

Application—The NTAG04AA is designed for use in Holland. On Meridian 1 systems, it can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NTAG04AA CO/DID Trunk Card:

- supports ALS B1 and B2 signaling and 50 Hz periodic pulse metering (PPM) detection
- detects the polarity of the central office line
- detects incoming digipulses and sends a message to the central processing unit (CPU) for each digit
- allows the trunk type to be configured on a per unit basis
- provides disabling of individual units or the entire card through software
- indicates self-test status during an automatic or manual self-test
- converts transmission signals from analog to digital and from digital to analog
- provides 600 ohm terminating impedance in compliance with regulatory Holland standards
- provides complex balance impedance in compliance with regulatory Holland standards

Quantity—Up to 16 cards per NT8D37 IPE Module

NTAG26 Enhanced Multi-frequency Receiver

System hardware—Options 51C/61C/81C

Purpose—The NTAG26 Enhanced Multi-frequency Receiver (XMFR) receives MF digit information from the Central Office. This MF feature allows the Meridian 1 system to receive 911 and feature group D applications. The XMFR has four ports, and operates only in systems using *u*-low compounding.

Quantity—One per IPE module

NTAG36 Meridian Integrated RAN (MIRAN)

System hardware—Options 11C/51C/61C/81C and all systems equipped with a Meridian 1 IPE shelf and X11 release 19 or later software.

Purpose—The MIRAN card provides up to eight internal, one-to-one ports and two external, multi-cross-connect ports to support Recorded Announcement (RAN) and Music On Hold (MOH) applications. Each multi-cross-connect port can connect to a maximum of 16 external EXUT/XFEM ports to provide the same announcement on a number of channels. For systems with release 23 or later software and the RAN Broadcast feature, each of the internal ports with built-in trunk emulation can support up to 30 callers hearing the same RAN message.

The MIRAN card emulates the NT8D14BA vintage or greater Enhanced Universal Trunk (EXUT) circuit card. The MIRAN emulates any DS-30X signaling protocol, including TCM signaling, to be compatible with existing and future terminals and consoles. In addition, MIRAN provides access to any one of the 32 voice channels on a DS-30X loop for both voice and data applications.

The original MIRAN card (NTAG36AA), upgraded to MIRAN Release 2.0 software, provides the following RAN/Music functionality:

- Easily expandable, industry-standard architecture (small, medium, and large configuration controlled by keycode)
- Simplicity of the basic system (no external devices or cables required)
- A set of both standard and proprietary interfaces

- Embedded real-time operating system
- Support for CE-MUX and Card-LAN interfaces
- Up to eight channels of RAN or Music directly
- Up to 40 channels of RAN or Music using the two cross-connect ports connected to external EXUT or XFEM ports
- 366 day calendar allowing the assigning of different messages to a particular channel based on time of day, day of week, and day of year
- Password protected RAN recording and channel assignment from any DTMF telephone using a simple voice menu interface
- Passwords for individual channels
- Professional recordings of RAN and MOH that are supplied on PCMCIA Flash cards and can be instantly installed
- Swapping of recordings between “in-service” and “in-reserve” using any telephone set
- Full flexibility in length of recordings up to storage limits
- A minimum of eight minutes of recording capacity on the base pack
- Additional recording capacity available through PCMCIA ATA Flash cards
- Two external analog inputs to allow access to and uploading of additional recordings
- Message backup and restore capability
- An emergency signal using software to replace existing message(s)
- Six minutes of pre-recorded copyright free music for turn key MOH

The new MIRAN card (NTAG36AB) contains an Ethernet port and provides the following *additional* functionality:

- Embedded web server for point-and-click access to MIRAN features and multiple MIRAN cards
- FTP download of voice and music.WAV files
- Automatic time and date synchronization with the Meridian 1 system
- Access to on-line Nortel Networks technical publications

For more information on the NTAG36 Meridian 1 Integrated RAN card, please refer to *Meridian Integrated RAN: Description, Installation, and Operation* (553-3001-112) for more details.

NTBX80AA ISDN Network Termination Unit (NT1)

System hardware—All

Purpose—The NT1 is the link between the central office equipment and the customer premises equipment in the ISDN. The NT1 is located at the customer premises, and supports ISDN Basic Rate Interface (BRI) service by providing two ANSI-standard interfaces:

- the subscriber loop (U loop), which connects the NT1 to the network
- the customer interface bus (S/T bus), which connects the NT1 to the customer's terminal equipment

Application—The NTBX80AA contains one stand-alone NT1 unit and is typically wall- or desk-mounted at the user's workstation. The stand-alone version has an optional companion power supply that converts AC power to the -48 V dc used by the NT1 unit.

NTBX84AA/BA Rack mount NT1 Card—Basic/Enhanced

System hardware—All

Purpose—The NT1 is the link between the central office equipment and the customer premises equipment in the ISDN. The NT1 is located at the customer premises, and supports ISDN Basic Rate Interface (BRI) service by providing two ANSI-standard interfaces:

- the subscriber loop (U loop), which connects the NT1 to the network
- the customer interface bus (S/T bus), which connects the NT1 to the customer's terminal equipment

Application—The NTBX84AA/BA NT1 Basic Card provides card status indication to the NT1 module as follows:

- test status of NT1
- status of frame synchronization on U interface
- status of frame synchronization on S/T interface

- S/T loop power overload

The NTBX84AA/BA NT1 Enhanced card provides optional star bus configuration on the S/T interface. Two independent outputs provide mixed bus configurations and/or maximum loop reach to two user locations via one U loop.

NTCK16 Generic Central Office Trunk Card

System hardware—All

Purpose—The generic central office trunk card comes in two versions: Ax and Bx

The NTCK16Ax and NTCK16Bx Generic Central Office Trunk Cards support up to eight analog central office trunks. The NTCK16Ax card supports internal 12/16 kHz PPM but the NTCK16Bx card does not.

Application—The NTCK16 Generic Central Office Trunk Card has eight units and does the following:

- supports the North American loss plan
- supports loop start signaling
- supports busy tone detection and supervision on a per unit basis.
- supports battery reversal detection
- provides 4 dB dynamic attenuation pads on a per call basis
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law or μ -Law companding
- indicates self-test status during an automatic or manual self-test
- provides card identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- provides termination and transhybrid balance impedance to match 600 ohms

On Meridian 1 systems, the generic central office trunk card can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NTCK16AA, BA, AX, and BX Generic Central Office Trunk Cards operate in the following countries:

- Brazil
- Ireland
- Mexico
- Singapore
- Tortola

The NTCK16AD and BD Generic Central Office Trunk Cards operate in the following countries:

- Argentina
- Bahrain
- Chile
- Egypt
- Indonesia
- Korea
- Kuwait
- Lebanon
- Taiwan
- Thailand
- Turkey
- Venezuela

NTCK18AA Central Office Trunk Card (Italy)

System hardware—All

Purpose—The NTCK18AA Central Office Trunk Card provides the interface between the Meridian 1 system and up to eight analog central office (CO) trunks.

Application—On Meridian 1 systems, the NTCK18AA can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

The NTCK18AA Central Office Trunk Card:

- is equipped with eight trunk units
- supports internal 12 kHz periodic pulse metering (PPM)
- allows the trunk type to be configured on a per unit basis
- allows individual units or the entire board to be disabled by software
- provides software-selectable A-Law or μ -Law companding
- indicates self-test status during an automatic or manual self-test
- provides card identification for auto-configuration and for determining the serial number and firmware level of the card
- converts transmission signals from analog to digital and from digital to analog
- supports the old and new Italy loss plans
- provides adjustable transmission pads for long or short line operation
- provides termination and transhybrid balance impedance to match the Italian complex impedance network
- provides direct reporting of periodic pulse metering (PPM) pulses to software in either buffered or unbuffered format.
- supports loop start signaling
- provides a software-selectable loss plan that allows a choice of either the old or new Italian loss plan
- supports busy tone detection and supervision on a per unit basis

NTCK22AA Direct Inward Dial Trunk Card (Italy)

System hardware—All

Purpose—The NTCK22AA Direct Inward Dial (DID)/Tie Trunk Card provides the interface between the Meridian 1 system and up to eight analog DID/Tie trunk lines.

Application—On Meridian 1 systems, the NTCK22AA can be installed in any PE slot that supports intelligent peripheral equipment (IPE).

Each NTCK22AA Trunk Card:

- converts transmission signals from analog to digital and from digital to analog for up to eight audio paths
- supports the old and new Italian loss plans
- supports 2-wire loop dial repeating for tie trunk application
- provides software-selectable A-Law and μ -Law companding
- provides faceplate LED for board status and selftest pass
- provides disabling of individual units or the entire board
- provides switch-selectable transhybrid balance impedance to match 600 ohm/Italian complex impedance
- provides the correct signaling impedance and voltages to operate with the Italian central office
- offers full transmission compliance to current Italian technical requirements

NTCK90 Companion Meridian 1 Controller Card

System hardware—Options 51C/61C/81C

Purpose—Provides a primary interface and control functions between the Meridian 1 and the Companion Radio and Companion Line cards. It also provides ports to base stations.

The Companion Meridian 1 Controller Card (CMCC) must be in the left-most position in the module with respect to the expansion CMRC and CMLC cards. All Companion cards must be installed contiguously in the module.

Each CMCC requires an NTCK94 ROM card that is installed onto the CMCC card.

Quantity—One per CE/PE or IPE module

NTCK91 Companion Meridian 1 Radio Card

System hardware—Options 51C/61C/81C

Purpose—Provides interfaces for 16 Companion base stations and 16 users. Up to 15 cards can be supported.

Quantity—One to nine Companion Meridian 1 Radio Cards (CMRC) per CE/PE module and one to fifteen per IPE module

NTCK93 Companion Meridian 1 Line Card

System hardware—Options 51C/61C/81C

Purpose—Provides interfaces for 16 Companion base stations and 16 users. Up to 15 cards can be supported.

Quantity—One to nine Companion Meridian 1 Line Cards (CMLC) per CE/PE module and one to fifteen per IPE Module

NTCW80 Meridian Integrated IP Telephony Gateway (ITG) Card

System hardware—Options 11C, 11E, 21E, 51, 51C, 61, 61C, 71, 81 and 81C systems running X11 release 21 or later software. It is also compatible with SL-1 systems NT, RT, and XT upgraded to support IPE cards.

Purpose— The Meridian Integrated IP Telephony Gateway (ITG) card compresses Pulse Code Modulation (PCM) voice, demodulates Group 3 fax, and routes the packetized data over a private internet, or intranet, to provide non-ISDN tie trunks between Meridian 1 Electronic Switched Network (ESN) nodes.

The ITG card supports standard H.323 call processing and ITU standard Digital Signal Processor (DSP) voice coding and compression algorithms (codecs), such as G.711, G.723, G.729AB, and G.729B. It supports real-time Group 3 fax support, Call Detail Recording (CDR), and Least Cost Routing.

A key feature of ITG is the ability to monitor the data network and automatically re-route calls to circuit-switched voice facilities if quality of service over the data network declines. This *Fallback to Conventional Circuit-Switched Voice Facilities* feature allows the system and craftsperson to determine what is the acceptable quality of service over the data network. The customer can configure quality of service parameters as required. If the quality falls below the expected level of quality of service, the regular circuit-switched route is selected until the quality of service is back to the acceptable level.

The NTCW80 ITG card supports eight voice channels (trunk ports) per card and emulates an NT8D14 Universal Trunk (EXUT) card. The amount of ports supported on a card is controlled by a keycode.

For more information, refer to *Meridian Integrated IP Telephony Gateway (ITG): Description, Installation, and Operation* (553-3001-116).

Quantity—One or more per IPE module. Each card uses two card slots.

QPC71 E&M/DX/Paging Trunk Card

System hardware—Options 51C/61C/81C

Purpose—Used in μ -Law applications in one of the following ways to interface with appropriate types of trunk facilities:

- E&M signaling, 2-way dial repeating trunk
- 2-wire DX signaling, 2-way dial repeating trunk
- 4-wire DX signaling, 2-way dial repeating trunk (a 24V4 repeater, externally mounted, converts the trunk from 2- to 4-wire)
- paging trunk or externally mounted loudspeaker

Each card contains two separate, identical trunk circuits. Trunk usage option is selected by switches on the circuit card.

See *Trunk Cards: Description* (553-3001-106) for more details.

Note: Minimum vintage F is required.

Quantity—One per two trunk circuits

QPC250 Release Link Trunk Card

System hardware—Options 51C/61C/81C

Software generic—X11, X37

Purpose—Used to interface a remote system, arranged for the Centralized Attendant Service (CAS) option, with the main system where the CAS attendant is located.

The card contains two separate, identical trunk circuits, with balanced terminating impedance of 900 ohms.

Vintage C and later complies with CSA standard C22.2 No 0.7-M1985.

See *Trunk Cards: Description* (553-3001-106) for more details.

Note: Minimum vintage B is required.

Quantity—One per two release line trunks

Meridian 1QPC297 Attendant Console Monitor Card

System hardware—Options 51C/61C/81C

Purpose—Interfaces attendant consoles (including add-on modules) when the supervisory console feature is used. Allows the supervisory attendant to monitor calls being handled by attendants within the customer group.

Quantity—One per Attendant console in systems using the Supervisory Console feature.

QPC311 Data Line Card

System hardware—All

Software generic—All

Purpose—This line card is required to interface the Meridian 1 to add-on data modules and other data equipment used in μ -Law applications.

See *Meridian Data Services: Description* (553-2731-100) for application details.

QPC327 MFC Sender/Receiver Card

System hardware—All

Software generic—X11 with supplementary features

Purpose—This card is used to provide the exchange of information between the Meridian 1 and other exchanges using multifrequency compelled (MFC) signaling protocol. The QPC327 may be used with either A-Law or μ -Law applications.

QPC341 Data Line Card

Purpose—Same as QPC311 but for A-Law applications.

QPC343 Ground Button Recall Line Card

Purpose—Superseded by QPC532.

Allows 500/2500-type sets equipped with a ground button to access special features in A-Law Applications.

QPC353 Modem Pool Line Card

System hardware—All

Software generic—All

Purpose—Interfaces to outbound asynchronous modems used in asynchronous modem pool configurations.

QPC354 Modem Pool Line Card

Purpose—Same as QPC353 for Meridian 1 using A-Law.

QPC390 Pulsed E&M Trunk Card

System hardware—All

Software generic— X11

Purpose—This trunk provides the appropriate interface between the Meridian 1 and public exchanges that use timed pulses for trunk signaling in A-Law applications.

QPC391 Pulsed E&M Trunk Card

Purpose—Same as QPC390 for μ -law applications.

QPC397 MCDS Asynchronous Card

System hardware—All

Software generic—All

Purpose—Equivalent to four QMT8 ADM. Refer to *Meridian Data Services: Description* (553-2731-100).

QPC422 Tone Detector Card

System hardware—Options 51C/61C/81C

Purpose—Identifies tones and reports to CPU appropriately. Each card contains two tone detector circuits controlled by two microprocessors.

Quantity—One per system

QPC430 Asynchronous Interface Line Card

System hardware—Options 51C/61C/81C

Purpose—Provides four asynchronous line ports. Used in the SL-1 Data Feature to interface to data equipment conforming to the EIA RS-422 standard. See *Meridian Data Services: Description* (553-2731-100) for more information.

Vintage C or greater is required for the Computer PBX Interface (CPI) application.

Vintage E is required for Host Mode operation.

For system options, QPC430F or later vintage is required.

Quantity—One per four data lines

QPC432 4-Port Data Line Card

System hardware—Options 51C/61C/81C

Purpose—Provides four data-only ports for the SL-1 Data Feature. See *Meridian Data Services: Description* (553-2731-100) for more information.

Note: Minimum vintage C is required.

Quantity—One per four data ports

QPC449 Loop Signaling Trunk Card

System hardware—Options 51C/61C/81C

Purpose—Interfaces the following 600- or 900-ohm trunks in μ -Law applications:

- direct inward dialing (DID)
- 2-way tie, dial repeating (2DR)
- 2-way tie, outgoing automatic incoming dial (OAID)
- outgoing automatic number identification (OANI)

The card contains four separate identical trunk circuits. The trunk usage option is selected by switches on the circuit card.

Vintage B and later complies with CSA standard C22.2 No 0.7-M1985.

See *Trunk Cards: Description* (553-3001-106) for more details.

Quantity—One per four loop signaling trunks

QPC450 CO/FX/WATS Trunk Card

System hardware—All

Purpose—Supersedes the QPC217/218/219/272. Interfaces four 600- or 900-ohm CO, FX, or WATS trunks with the system in μ -Law applications. The card can also detect ringing on either the tip or ring leads and has a provision to extend the normal loop range from 1200 to 2600 ohms using balanced battery boost from the central office.

The card contains four separate identical trunk circuits. The trunk usage option is selected by switches on the circuit card.

Vintage D and F and later complies with CSA standard C22.2 No 0.7-M1985.

Note: For system options, QPC450E or later vintage is required.

See *Trunk Cards: Description* (553-3001-106) for more details.

Quantity—One per four CO/FX/WATS trunks

QPC451 SL-1 Set Line Card

System hardware—All

Software generic—All

Purpose—Interfaces SL-1 telephone sets and attendant consoles, including expansion modules, with the Meridian 1 for μ -Law applications.

Features—Eight separate, identical line circuits on each pack that can be assigned to different customers. Two line circuits are used for each attendant console. Two additional line circuits can be used for console power. Vintage B is required for consoles.

If the Supervisory Attendant feature (Generic X37) is equipped, a QPC297 pack is used in place of the QPC451 to interface with attendant consoles.

QPC494 500/2500 Line Card (Message Waiting)

System hardware—All

Software generic—X11, X37

Purpose—Supersedes the QPC267. Used in NT8D37 IPE Modules to interface analog telephone lines with the system in μ -Law applications. The pack is also used to interface with other standard 500-type telephone apparatus such as NE-1A2 key telephone equipment, telephone answering sets, and modems. Includes circuitry for the Message Waiting feature.

The card contains eight identical units for interfacing with eight line facilities. Each unit provides the following features:

- interface to 500-type (rotary dial) or 2500-type (Digitone dial) telephones or to key telephone equipment
- 600-ohm balanced terminating impedance on the loop tip and ring leads
- -48 V through a battery feed resistance and ground
- on hook and off hook status detection
- ringing current to the loop

See *Line Cards: Description* (553-3001-105) for more details.

Quantity—Maximum of ten cards per NT8D13 PE Module

QPC512 Personal Computer Interface Card

System hardware—All

Software generic—All

Purpose—Used in the Data Feature to interface the Meridian 1 to an IBM Personal Computer or IBM Personal Computer XT. Refer to *Meridian Data Services: Description* (553-2731-100).

QPC520 SL-1 Line Card

System hardware—All

Software generic—All

Purpose—Replaces the QPC519. Interfaces SL-1 telephone sets and attendant consoles to Meridian 1, including expansion modules, for A-Law applications.

Features—Eight separate, identical line circuits on each pack that can be assigned to different customers.

If the Supervisory Attendant feature (Generic X37) is equipped, a QPC342 pack is used in place of the QPC520 to interface with attendant consoles.

QPC521 500/2500 Line Card

System hardware—All

Software generic—All

Purpose—Interfaces on- or off-premises manual, rotary, or Digitone dial 2-wire telephone sets (NE-500 or -2500 sets) with the Meridian 1 in A-Law applications. The pack is also used to interface with other standard 500-type telephone apparatus such as NE-1A2 key telephone equipment, telephone answering sets, and modems. Refer to *Line Cards: Description* (553-3001-105).

Features—Accommodates eight identical line circuits that can be assigned to one or different customers. The loop range from the PE shelf to the set is 1000 $\frac{3}{4}$ maximum (excluding the set).

QPC525 CO/FX/WATS Trunk Card with PPM

System hardware—All

Software generic—All

Purpose—Same as QPC450 but includes a daughterboard for periodic pulse metering (PPM) applications.

QPC526 CO/FX/WATS Trunk Card with PPM

System hardware—All

Software generic—All

Purpose—Same as QPC525 but for A-Law applications.

QPC527 CO/FX/WATS Trunk Card

System hardware—All

Software generic—All

Purpose—Same as QPC450 but for A-Law applications.

QPC528 CO/FX/WATS Trunk Card

System hardware—All

Software generic—All

Purpose—Same as QPC450 but all circuits meet EIA standards.

QPC532 Ground Button Recall Line Card

System hardware—All

Software generic—All

Purpose—Supersedes the QPC302 and QPC343. Allows 500/2500-type sets equipped with a ground button to use this button to access special features in A-Law or μ -Law applications. Refer to *Line Cards: Description* (553-3001-105) for more details.

QPC540 Dial Tone Detector

System hardware—All

Software generic—X08

Purpose—For operation in the Swiss environment. It provides identification of dial tones and the rejection of busy tone.

Features—Each pack contains two separate tone detector circuits.

QPC550 DID Trunk Card

System hardware—All

Software generic—X08

Purpose—For operation in the Swiss environment. It interfaces with 600 or 900 $\frac{3}{4}$ trunks.

Features—Each pack contains four separate trunk circuits.

QPC551 Radio Paging Trunk Card

System hardware—All

Software generic—X08

Purpose—This trunk circuit provides an interface between the Meridian 1 and the Hasler DS-2000 Radio Paging system.

Features—Each pack contains two separate trunk circuits.

QPC558 Message Waiting Line Card

Purpose—Same as QPC494 for Meridian 1 using A-Law.

QPC559 Loop Signaling Trunk Card

Purpose—Same as QPC449 for Meridian 1 using A-Law.

QPC560 Loop Signaling Trunk Card

Purpose—Same as QPC449, with all circuitry conforming to EIA standards.

QPC574 Digitone Receiver

System hardware—All

Software generic—All

Purpose—Supersedes the QPC79. Converts multifrequency dialing signals from a Digitone station to DC pulses suitable for processing in the system control in μ -Law applications. Refer to *System Engineering* (553-3001-151) for calculation of quantity required.

Features—Differentiates between valid DIGITONE signals and speech or noise without using out-of-band signals. Two receivers are available on each pack. Only one port can be accessed when this card is installed in a single density shelf.

QPC577 Digitone Receiver Daughterboard (μ -Law)

System hardware—All

Software generic—All

Purpose—The QPC577 Digitone Receiver Daughterboard is a double-sided printed circuit board that must be mounted on a QPC659 Dual Loop Peripheral Buffer. It performs the same functions as the stand alone QPC595 DTR.

Features—The QPC577 reroutes dial tone to and receives Digitones from up to two Digitone telephones simultaneously. It converts the received Digitones into digital outputs suitable to the Meridian 1.

Quantity—One per QPC659 Dual Loop Peripheral Buffer

QPC578 Integrated Services Digital Line Card

System hardware—Options 51C/61C/81C and system MS/N/XN/NT/XT/SN/ST/S (minimum vintage B is required for RPE)

Purpose—Interfaces the digital telephones and the associated ASCII terminals on time compression multiplexing (TCM) loops to the system. Each card contains 16 separate line circuits, eight data circuits, and eight voice circuits.

See *Line Cards: Description* (553-3001-105) for more details.

Quantity—One per eight digital telephones

QPC594 500/2500 Line Card

System hardware—Options 51C/61C/81C

Purpose—Allows for 16 circuits per card (quad density) using μ -Law.

Quantity—One per 16 500/2500 lines

QPC595 Digitone Receiver

System hardware—All

Software generic—All

Purpose—Supersedes the QPC79. Converts multifrequency dialing signals from a Digitone station to DC pulses suitable for processing in the system control in A-Law applications. Refer to *System Engineering* (553-3001-151) for calculation of the quantity required.

Features—Differentiates between valid Digitone signals and speech or noise without using out-of-band signals. Two receivers are available on each pack.

QPC596 Digitone Receiver Daughterboard (A-Law)

System hardware—All

Software generic—All

Purpose—The QPC596 Digitone Receiver Daughterboard is a double-sided printed circuit board that must be mounted on a QPC659 Dual Loop Peripheral Buffer. It performs the same functions as the stand-alone QPC595 DTR.

Features—The QPC596 reroutes dial tone to and receives Digitones from up to two Digitone telephones simultaneously. It converts the received Digitones into digital outputs suitable to the Meridian 1.

Quantity—One per QPC659 Dual Loop Peripheral Buffer

QPC650 Music Trunk Card (μ -Law)

System hardware—All

Software generic—X08, release 9 and later

Purpose—Consists of analog to digital converters to provide music and recorded announcements in addition to the tones and cadences available from the ATDS. Provides up to eight channels of digital data to ATDS when installed in a dual-density PE shelf and up to four channels when installed in a single-density PE shelf. Works with QPC606 ATDS.

Quantity—One per ATDS

QPC651 Music Trunk card (A-Law)

System hardware—All

Software generic—X08

Purpose—Consists of analog to digital converters to provide music and recorded announcements in addition to the tones and cadences available from the ATDS. Provides up to eight channels of digital data to ATDS when installed in a dual-density PE shelf and up to four channels when installed in a single-density PE shelf. Works with QPC605, QPC607, or QPC608 ATDS.

Quantity—One per ATDS

QPC659 Dual Loop Peripheral Buffer Card

System hardware—Options 51C/61C/81C and system MS/N/XN/SN/ST/NT/XT (can also be used in QCA137, QCA144 and QCA146 cabinets)

Purpose—Interfaces one or two network loops. Also, a Digitone daughterboard can be installed on the peripheral buffer and is used to convert multifrequency dialing signals from a Digitone station to DC pulses suitable for processing in the system control.

Quantity—Up to ten per NT8D13 PE Module or one per dual loop shelf.

Station equipment

Content list

The following are the topics in this section:

- [M2000 Series Meridian Digital Telephones 154](#)
- [M2250 Attendant Consoles 156](#)
- [500/2500 telephones 156](#)
- [C3050 and C3060 Portable Handsets 156](#)
- [Companion base station 157](#)
- [M7310 Companion administration terminal 158](#)
- [QMT11 Asynchronous/Synchronous Interface Module 158](#)
- [QMT12 Add-on Data Module 158](#)
- [NT1F09 Asynchronous data option 159](#)
- [NE-G3QDRNC Attendant Handset Assembly 159](#)
- [NT3G30 Console Adjustable Stand 159](#)
- [NT3G40 Console Graphics Module/Busy Lamp Field 160](#)
- [NT2K69 Meridian Communications Adapter 160](#)

Reference list

The following are the topics in this section:

- *M1250 and M2250 Attendant Consoles: Description (553-2201-117)*
- *Meridian Data Services: Description (553-2731-100)*
- *Meridian 1 Telephones: Description and Specifications (553-3001-108)*

M2000 Series Meridian Digital Telephones

M2000 Series Meridian Digital Telephones provide integrated voice and data communication capability. The following M2000 Series Meridian Digital Telephones are available:

- **M2006**—A single-line telephone with six programmable keys.
- **M2008**—A multi-line telephone with eight programmable keys.
- **M2616**—A high-performance multi-line telephone with 16 programmable keys and an integrated handsfree unit.
- **M2016S**—A Telephone Security Group Class II approved telephone designed to provide on hook security. It is similar to the M2616, with 16 programmable keys, but has no handsfree capability.
- **M2216ACD**—A multi-line telephone for ACD operations. It has 15 programmable function keys, an ACD Display Module, and two RJ-32 jacks for modular electret headsets.

The following hardware options can be added to M2000 Series Meridian Digital Telephones:

- External Alarmer Interface Board
- Display Module
- Meridian Communications Adapter (MCA)
- Analog Terminal Adaptor
- Key Expansion Module

See *Meridian 1 Telephones: Description and Specifications* (553-3001-108) for additional information.

The Meridian M2317 has 17 keys:

- 11 programmable keys
- one key to control the built-in handsfree feature
- five softkeys that are programmable for software features

An asynchronous data option circuit board and data option power supply are available for connecting data terminals to the M2317 telephone. Table 4 lists the ordering codes for the M2317 telephone alone and with hardware options installed.

Table 4
Order codes for M2317 telephones and options

Description	Ordering code
M2317 digital display telephone, black	NT1F21AE-03
M2317 digital display telephone, chameleon ash	NT1F21AE-35
M2317 digital display telephone, dolphin gray	NT1F21AE-93
M2317 digital display telephone (with ADO), black	NT1F21ME-03
M2317 digital display telephone (with ADO), chameleon ash	NT1F21ME-35
M2317 digital display telephone (with ADO), dolphin gray	NT1F21ME-93
M2317 telephone power supply	A0336406
Multioutput data power supply	A0336823
Data option circuit board, asynchronous	NT1F09AC

M2250 Attendant Consoles

The Meridian Attendant Console allows the customer to make full use of all the attendant features and services offered by the Meridian 1 system.

The Meridian attendant console has a four-line (40 characters per line) liquid crystal display (LCD) with backlighting and adjustable viewing angle. The M2250 is driven and powered by a digital line card and has a modified cabling scheme.

See *M1250 and M2250 Attendant Consoles: Description* (553-2201-117) for additional information.

500/2500 telephones

Single-line 500-type rotary dial telephones and 2500-type Digitone push-button dial telephones can be used with Meridian 1.

Standard 48V talk battery and 20Hz ringing voltage are available so that conventional equipment such as answering machines, dictation machines, data sets, modems, and key telephones can be used.

If the Message Waiting lamp feature is required, use NE-500YR or NE-2500YQA telephones.

C3050 and C3060 Portable Handsets

The C3050 and C3060 are portable wireless telephones that are used to communicate over the Companion base station with the Companion Meridian 1 Controller Card (CMCC).

The handset provides:

- two-line alphanumeric LCD with status icons
- adjustable ringer type
- adjustable volume

Companion base station

The base station is a dual-radio transceiver. It provides the link between the portable handsets and the Companion controller card (CMCC). Each base station supports up to two simultaneous calls and provides the option of loop powering over a remote power interconnect (RPI) unit.

To operate the base station, the appropriate selection of the following components must be used. The selection depends on the base station site application:

- A plug-top power supply for local external AC power source or a remote power interconnect (RPI) for line powering of the base station.
- Indoor omnidirectional antenna R1636 is recommended when reception is required all around the antenna.
- Indoor directional antenna J7527 is recommended when the transmission is in a single direction.
- Antenna protection device used to suppress current surges of 50,000 amps.
- Outdoor omnidirectional antenna R1630 is recommended when the transmission coverage is required outside the building. A 50,000-amp surge protector for this antenna can be ordered separately. The coaxial cable connecting the antenna should not exceed 10 m (33.3 ft).
- Standard twisted RJ-11 cable to connect the base station to the Companion radio and line card ports.

M7310 Companion administration terminal

The M7310 is a standard Norstar Meridian terminal. It allows the system administrator or installer to perform Companion maintenance and administration tasks.

The M7310 provides the following features:

- two line displays
- three display softkeys
- ten feature keys with indicators

The keypad, feature keys and softkeys are used for system administration, maintenance, and configuration functions.

QMT11 Asynchronous/Synchronous Interface Module

The ASIM provides an RS-232-C interface to customer supplied data equipment. It also provides added dialing capabilities and six data feature keys with associated lamps and data control switches. See *Meridian Data Services: Description* (553-2731-100) for more information.

QMT12 Add-on Data Module

The synchronous ADM provides a CCITT V.35 interface between the Meridian 1 and customer-supplied data equipment. Each ADM requires a local supplementary power supply. See *Meridian Data Services: Description* (553-2731-100) for more information.

NT1F09 Asynchronous data option

This microprocessor-controlled device provides the interface (RS-232 compatible) through which ASCII data terminal equipment can be connected to the Meridian 1 network.

The NT1F09 printed circuit board is used with M2317 digital telephones. See *Meridian 1 Telephones: Description and Specifications* (553-3001-108) for more information.

The following features are available:

- automatic data rate detection at all rates using the ASCII carriage return character
- keyboard dialing for originating data calls to local and remote hosts or DTE from the terminal keyboard
- break detection and generation

NE-G3QDRNC Attendant Handset Assembly

The NE-G3QDRNC Attendant Handset Assembly is available in chameleon ash and black versions. Both versions are hearing aid compatible and are equipped with a 9 ft handset cord.

- NE-G3QDRNC-35 Chameleon Ash
- NE-G3QDRNC-03 Black

NT3G30 Console Adjustable Stand

The Console Adjustable Stand is attached to the bottom of the Meridian M2250 attendant console by four screws. It is adjustable into any one of nine positions.

NT3G40 Console Graphics Module/Busy Lamp Field

The Console Graphics Module (CGM/BLF) is an attachment that can be mounted on the back of the M2250 attendant console. The screen of the module relays information relating to the operation of the console and the status of other consoles and extensions.

The Console Graphics Module (CGM/BLF) has a 16-line (20 characters per line) liquid crystal display with backlighting. The Busy Lamp Field (BLF) is an option that displays that status of consoles and extensions. Refer to *M1250 and M2250 Attendant Consoles: Description* (553-2201-117) for additional information.

The graphics module is available in dark gray and chameleon gray ash versions:

- A0349423 (Dark Gray)
- A0349421 (Chameleon Gray Ash)

NT2K69 Meridian Communications Adapter

The MCA provides the interface (RS-232-compatible) through which ASCII data terminal equipment can be connected to the network. It is available with the M2006, M2008, M2016S, and M2616 Meridian Modular Telephones. Features available include:

- keyboard dialing for originating data calls to local or remote hosts or DTE
- telephone keypad dialing for originating and releasing data calls
- parameter setting through service change (minimum X11 release 18 required)
- parameter setting from telephone keypad (required with release 15–17, optional with Release 18)
- voice call origination from terminal keyboard
- script file capabilities to preprogram resource locations using mnemonic address name.

Cables

Content list

The following are the topics in this section:

- [Reference list 168](#)
- [A0601464 Nullmodem Maintenance Cable 169](#)
- [A0634495 Local Fiber Remote Multi-IPE Cable Superloop 169](#)
- [A0634496 Remote Fiber Remote Multi-IPE Cable Superloop 170](#)
- [A0634497 Fiber Remote Multi-IPE Maintenance Interface Cable 170](#)
- [A0660711 25DB Adapter Cable 170](#)
- [NE-A18Q Connector Cable 170](#)
- [NE-A25 Connector Cable 171](#)
- [NE-A25Q Connector Cable 172](#)
- [NPS50843-7L01 Interboard Faceplate Cable Harness 172](#)
- [NPS50843-7L02 Bypass Faceplate Cable Harness 172](#)
- [NPS90781-20L01 CMRC Maintenance Cable 173](#)
- [NPS90781-20L02 CMLC Maintenance Cable 173](#)
- [NT1P64AA Fibre Optic Patchcord 173](#)
- [NT1P75AA Fibre Optic Patchcord 173](#)
- [NT1P76AA Fibre Superloop Network Card to I/O Panel Cable 173](#)
- [NT1P78AA Fibre Peripheral Controller Card to I/O Panel Cable 174](#)
- [NT1P85AA External Alarm Cable 174](#)

- NT1R04 Clock Controller to I/O Panel Cable 174
- NT1R05 Intercabinet Clock Reference Cable 174
- NT2K2AA Null Modem Cable 175
- NT2K91AA RS-232 Cable 175
- NT5D16AA Meridian 1 Trunk Tip/Ring Cable 175
- NT5D17AA Meridian 1 Trunk Tip/Ring Cable 175
- NT5D19AA Maintenance cable 176
- NT5D50AA DBX Ribbon Cable 176
- NT5K53AA Cable Assembly (UK only) 176
- NT5K54AA Cable Assembly (UK only) 176
- NT5K63AA Cable Assembly (UK only) 177
- NT5K64AA Cable Assembly (UK only) 177
- NT5K65AA Cable Assembly (UK only) 177
- NT5K66AA Cable Assembly (UK only) 178
- NT5K79AA Cable Assembly (UK only) 178
- NT5K80AA Cable Assembly (UK only) 178
- NT5K81AA Cable Assembly (UK only) 179
- NT5K1104 MDF to EEPE Cable 179
- NT5K1109 Module to Module Power Harness 179
- NT5K1110 Intracabinet Network Cable 179
- NT6D54 Field Wiring Kit 179
- NT7D11 Module to Module Power Harness 180
- NT7D67DA Local External Maintenance Cable Assembly 180
- NT7D68AA Remote Carrier/Alarm Cable Assembly 180
- NT7D68BA Remote Maintenance Cable Assembly 180
- NT7D68CA Remote Carrier/Alarm Cable Assembly to Small Cabinet 180

- NT7D68DA Remote Maintenance Cable Assembly to Small Cabinet 181
- NT7D68EA Coaxial Interface Adapter Cable 181
- NT7D69AA Extension Local Carrier Cable Assembly 181
- NT7D69BA Extension Local Maintenance Cable Assembly 181
- NT7D89 CP to I/O Panel RS-232 Cable 181
- NT7D90 CP to I/O Panel Ethernet Cable 182
- NT7R67AA Local Maintenance Cable Assembly 182
- NT7R67BA Local Carrier/Monitor Cable Assembly 182
- NT7R67CA Local Maintenance/Clock Cable Assembly 182
- NT7R67EA Coaxial Interface Adapter Cable 182
- NT8D40AA AC Power Cord 183
- NT8D40AM Module to Module Power Harness 183
- NT8D40AY AC Power Cord 183
- NT8D40BJ System Monitor to Backplane Cable 183
- NT8D40BK System Monitor Trip Cable 183
- NT8D46AA System Monitor Column Cable 183
- NT8D46AC Thermostat Harness 183
- NT8D46AD System Monitor to SDI Cable 184
- NT8D46AG System Monitor to SDI Paddleboard Cable 184
- NT8D46AH System Monitor to MDF Cable 184
- NT8D46AJ System Monitor to UPS (Best) Cable 184
- NT8D46AL System Monitor Serial Link Cable 184
- NT8D46AM Air Probe Harness AC 184
- NT8D46AP System Monitor Serial Link Cable 185
- NT8D46AQ System Monitor to UPS (Exide) Cable 185
- NT8D46AS System Monitor Inter-CPU Cable 185

- NT8D46AT System Monitor to QBL15 Cable 185
- NT8D46AU System Monitor to UPS (Alpha) Cable 185
- NT8D46AV System Monitor to Power Cabinet Cable 186
- NT8D46AW System Monitor to QBL12 Cable 186
- NT8D46BH System Monitor to MDF Cable 186
- NT8D46BV System Monitor to Power Cabinet Cable 186
- NT8D46CC System Monitor to Power Supply PCB Cable 186
- NT8D46CV System Monitor to Power Cabinet Cable 186
- NT8D46DC Air Probe Harness DC 187
- NT8D73 Intercabinet Network Cable 187
- NT8D74 Clock Controller to Junctor Cable 187
- NT8D75 Clock Controller to Clock Controller Cable 188
- NT8D76 IGS to InterGroup Module Cable 188
- NT8D77 FDI to FDU Cable 188
- NT8D78 CPU Cable 189
- NT8D79 PRI/DTI to Clock Controller Cable 189
- NT8D80 CPU Interface Cable 189
- NT8D81 Tip and Ring Cable 190
- NT8D82 SDI to I/O Cable 191
- NT8D83 PRI/DTI to I/O Cable 191
- NT8D84AA SDI Paddleboard to I/O Cable 191
- NT8D84BA System Monitor to I/O Cable 191
- NT8D85 Network to PE Cable 192
- NT8D86 Network to I/O Cable 193
- NT8D87 Conference/TDS to Music Trunk Cable 193
- NT8D88 Network to I/O Cable 193
- NT8D90AF SDI Multiple-Port Cable 193

- NT8D91 Network to Controller Cable 194
- NT8D92AB Controller to I/O Cable 194
- NT8D93 SDI Paddleboard I/O to DTE/DCE Cable 194
- NT8D95 SDI I/O to DTE/DCE Cable 195
- NT8D96AB SDI Multiport Cable 195
- NT8D97AX PRI/DTI I/O to MDF Cable 195
- NT8D98 Intercabinet Network Cable 196
- NT8D99 CPU to Network Cable 196
- NT9D47 EMSI to SMDU Data Cable 196
- NT9D66 EMSI to SMDU Power Cable 197
- NT9D89 EMSI to MDU Data Cable 197
- NT9J93AD PRI/DTI Echo Canceler to I/O Cable 197
- NT9J94AB RPE to I/O Cable 197
- NT9J96 Intracabinet Network Cable 198
- NT9J97 Intracabinet Network Cable 198
- NT9J98 Intracabinet Network Cable 198
- NT9J99 Intracabinet Network Cable 199
- NTAG01AA Cable Assembly (UK only) 199
- NTAG02AA Cable Assembly (UK only) 199
- NTAG81AA Audio Cable 199
- NTAG81BA Maintenance Extender Cable 200
- NTAG81CA PC Maintenance Cable 200
- NTAG81DA VLAN Maintenance Cable 200
- NTAK410 Carrier Remote DC Power Cable 200
- NTAK1204 Carrier Remote Inter-cabinet Cable 200
- NTCG03 Reference Clock Cable 201
- NTCK46 External DCHI Cable 201

- [NTCK80 External MSDL Cable 202](#)
- [NTND11 CP to CP Cable 202](#)
- [NTND13 IOP to IOP SCSI Cable 202](#)
- [NTND14 CNI to 3PE Cable 203](#)
- [NTND26 MSDL DCHI Interface Cable 203](#)
- [NTND27AB MSDL to I/O Panel Cable 203](#)
- [NTND28 Intercabinet Cable 204](#)
- [NTND33 Core Module Upgrade Kit 204](#)
- [NTND33CA Network Expansion Kit 204](#)
- [NTND37 Dual SDI Cable 205](#)
- [NTND94 CNI to I/O Panel Cable 205](#)
- [NTND95 3PE to Connector Housing Cable 205](#)
- [NTRC46 Clock to FIJI Cable 205](#)
- [NTRC47 FIJI to FIJI Sync Cable 206](#)
- [NTRC48 Fiber Ring Cable 206](#)
- [NTRC49 Clock to Clock Cable 206](#)
- [P0704007 Superloop Adapter Plate 207](#)
- [P0715058 Universal I/O Panel 207](#)
- [QCA328AD Connector Cable 207](#)
- [QCAD36A and QCAD37A Terminal Connector Cables 207](#)
- [QCAD38A Connector Cable 208](#)
- [QCAD40 Connector Cable 208](#)
- [QCAD42 Connector Cable 208](#)
- [QCAD110 Connector Cable 208](#)
- [QCAD115 Connector Cable 208](#)
- [QCAD116 Connector Cable 208](#)
- [QCAD117 Connector Cable 209](#)

- QCAD118 Connector Cable 209
- QCAD119 Connector Cable 209
- QCAD120 Connector Cable 209
- QCAD121 Connector Cable 209
- QCAD122 Connector Cable 209
- QCAD123 Connector Cable 210
- QCAD124 Connector Cable 210
- QCAD125 Connector Cable 210
- QCAD126 Connector Cable 211
- QCAD128 Connector Cable 211
- QCAD129 Connector Cable 211
- QCAD130 Connector Cable 211
- QCAD133 PRI/DTI I/O to MDF Cable 211
- QCAD172 Connector Cable 211
- QCAD209 Connector Cable 212
- QCAD253 Connector Cable 212
- QCAD273 Power Connector Cable 212
- QCAD274 Power Connector Cable 212
- QCAD274A AC Power Cord 212
- QCAD275 Power Connector Cable 212
- QCAD276 Power Connector Cable 212
- QCAD277 Power Connector Cable 212
- QCAD278 Power Connector Cable 212
- QCAD279 Power Connector Cable 212
- QCAD281 Connector Cable 213
- QCAD282 Connector Cable 213
- QCAD283 Power Connector Cable 213

- [QCAD287 Power Connector Cable 213](#)
- [QCAD291 Connector Cable 213](#)
- [QCAD293 Network Loop Connector Cable 213](#)
- [QCAD294 P10 Cable 213](#)
- [QCAD299 RPE Power Adapter Cable 214](#)
- [QCAD300 RPE Power Adapter Cable 214](#)
- [QCAD306 Power Adapter Cable 214](#)
- [QCAD308 PE Cable Assembly 214](#)
- [QCAD309 Alarm Adapter Cable 214](#)
- [QCAD310 Ground Cable 214](#)
- [QCAD311 Intracabinet Network Cable 215](#)
- [QCAD312 Intercabinet Network Cable 215](#)
- [QCAD313 PE Cable Assembly 215](#)
- [QCAD320 Connector Cable 215](#)
- [QCAD321 Power Adapter Cable 215](#)
- [QCAD328 PRI to DCHI Cable 216](#)
- [QCAD332/333 3-Port SDI Cables 216](#)
- [QCB6 Tape Unit Connector Cable 216](#)
- [QCB12/13 Connector Cable 216](#)
- [Interface cables 216](#)

Reference list

The following are the references in this section:

- *Call Detail Recording: Description and Formats (553-2631-100)*

Within Meridian 1, two types of cables are available:

- Intramodule cables connect circuit cards within a module, or they connect to the I/O panels at the rear of the module. Intramodule cables are not shielded. Bail locks or screws are generally used on the connectors to prevent accidental removal.
- Intermodule cables are routed between modules. These cables are used primarily for interconnecting the following subsystems:
 - CPU to CPU
 - CPU to network
 - network to network
 - network to peripheral equipment

A0601464 Nullmodem Maintenance Cable

Purpose—This cable has a DB-9 female and a DB-25 male connector and is used to connect the terminal to the NT5D51 Meridian Integrated Conference Bridge (MICB) card using the Ethernet Adapter card DB-9 male connector. No additional nullmodem is required.

A0634495 Local Fiber Remote Multi-IPE Cable Superloop

Hardware systems—All

Purpose—30-ft cable that joins the NT8D92AB backplane cable at the I/O panel to a Fiber Remote Superloop Network card using its 24-pin Centronics connector. The cable connects to a Fiber Remote unit within 30 feet of a Meridian 1 local site via its 37-pin D Shell connector.

Quantity—One per Fiber Remote Superloop card.

A0634496 Remote Fiber Remote Multi-IPE Cable Superloop

Hardware systems—All

Purpose—30-ft cable that joins the NT8D92AB backplane cable at the I/O panel to a Fiber Remote Superloop Network card using its 24-pin Centronics connector. The cable connects to a Fiber Remote unit within 30 feet of a remote IPE cabinet via its 37-pin D Shell connector.

Quantity—One per Fiber Remote Superloop card.

A0634497 Fiber Remote Multi-IPE Maintenance Interface Cable

Hardware systems—All

Purpose—A 24-in. cable that daisy-chains the SDI connection on the I/O panel of one Fiber Remote unit (using the end with the DB-9 male connector) to the MAINT connection on the I/O panel on the next Fiber Remote unit (using the end with the DB-9 female connector). Also, the first cable is connected to the SDI port on the Meridian 1 system, and the last cable is connected to a maintenance TTY.

Quantity—One per Fiber Remote module.

A0660711 25DB Adapter Cable

Hardware systems—All

Purpose—A 2-in. housing that enables a male-female gender change to facilitate connecting cables to equipment.

NE-A18Q Connector Cable

Purpose—

- to connect each network circuit pack to a group of PE shelves
- to interconnect network extender circuit packs
- to interconnect PE shelves in the same network loop
- to interconnect tone and digit switch circuit packs
- to interconnect CE shelves

- to connect multigroup switch packs to multigroup extender packs
- to interconnect multigroup extender packs
- to interconnect each DTI pack to a network circuit pack

Features—18-pair, 26 AWG tight twisted cable, connectorized at both ends (180 degree connectors). Use QCAD124 cables for 90 degree connectors.

Lengths—

FTMMFT	MM
130525	7600
261030	9300
4122035	10700
10305040	12200
15456045	13800
206100	

Quantity—The number and length of cables required depends on system hardware type and size.

Refer to 553-2YY1-210.

NE-A25 Connector Cable

Purpose—This cable is used to extend PE termination from PE shelves and transfer unit terminations to the cross-connecting terminal or MDF.

Features—25-pair, 26 AWG standard distribution cable connectorized at one end. Available in lengths of 25 to 200 ft (7.7 to 61 m) in increments of 25 ft (7.7 m).

Quantity—Refer to 553-2YY1-210.

NE-A25Q Connector Cable

Purpose—This cable is used to extend the CE bus from the CPU to all other CE shelves.

Features—25-pair, 26 AWG tight-twisted cable connectorized at both ends.

Lengths—

FT	MM
1.5	450
4	1220
6	1830
20	6100
25	7620

Quantity—Refer to 553-2YY1-210.

NPS50843-7L01 Interboard Faceplate Cable Harness

Purpose—Used with COMPANION radio and line cards in Meridian 1 systems with IPE and CE/PE modules. Connects two adjacent cards over the faceplate connectors. A cable is always shipped with an NTCK91 COMPANION Meridian Radio Card (CMRC) and an NTCK93 COMPANION Meridian Line Card (CMLC).

Length—5 cm (2 in.)

NPS50843-7L02 Bypass Faceplate Cable Harness

Purpose—Used with COMPANION radio and line cards in Meridian 1 systems with IPE and CE/PE modules except in Option 11. Used to bypass a faulty CMRC or CMLC card and to facilitate removal of the faulty card without disrupting traffic on other COMPANION cards in the module.

Length—30 cm (1 ft)

NPS90781-20L01 CMRC Maintenance Cable

Purpose—Used to connect two COMPANION Meridian Radio Card faceplate connectors for maintenance purposes. The cable has designated left and right connectors and care must be taken to plug the right connector into the right-hand CMRC card and the left connector into the left-hand CMRC card.

Length—60 cm (2 ft)

NPS90781-20L02 CMLC Maintenance Cable

Purpose—Used to connect two COMPANION Meridian Line Card faceplate connectors for maintenance purposes. The cable has designated left and right connector and care must be taken to plug the right connector into the right-hand CMLC card and the left connector into the left-hand CMLC card.

Length—60 cm (2 ft)

NT1P64AA Fibre Optic Patchcord

Purpose—Used to connect the NT1P61 Fibre Superloop Network Card Fibre Optic Packlet to the I/O panel fibre optic connector. The cable provides connections to the fibre optic span.

Length—120 cm (4 ft)

NT1P75AA Fibre Optic Patchcord

Purpose—Used to connect the NT1P62 Fibre Peripheral Controller Card Fibre Optic Packlet to the I/O panel fibre optic connector. The cable provides connections to the fibre optic span.

Length—120 cm (4 ft)

NT1P76AA Fibre Superloop Network Card to I/O Panel Cable

Purpose—Used to connect the NT1P61 Fibre Superloop Network Card faceplate connector to the I/O panel. The cable provides a connector to an SDI port and to system monitoring functions.

Length—120 cm (4 ft)

NT1P78AA Fibre Peripheral Controller Card to I/O Panel Cable

Purpose—Used to connect the backplane connector behind the NT1P62 Fibre Peripheral Controller Card faceplate connector to the I/O panel. The cable provides a connector to a TTY port and to the system monitor.

Length—120 cm (4 ft)

NT1P85AA External Alarm Cable

Purpose—Connects external alarms to the CB-15HD female Alarm connector on the NT7R60AA Carrier/Alarm Panel.

Length—

NT1R04 Clock Controller to I/O Panel Cable

Purpose—Used with Core module upgrades to Option 81 and the Core/Network module in Option 81C. Connects the clock controller card to the inside of the I/O panel in the Core module or to the Network module I/O panel for Option 81C. Also used from the clock controller junctor connector to the connector housing.

Length—1.2 m (48 in.)

NT1R05 Intercabinet Clock Reference Cable

Purpose—Used with Core module upgrades to Option 81 or the Core/Network module in Option 81C for primary and secondary clock reference. Connects the I/O panel on the module to the connector housing.

Length—4.8 m (16 ft)

NT2K2AA Null Modem Cable

Purpose—Used with a COMPANION diagnostic PC terminal that connects to Meridian 1. The null modem cable is used when the PC is connected to Meridian 1 using an external modem over the Remote Access Device (RAD).

Length—

- A0398761 3.0 m (10 ft)
- A0398762 7.5 m (25 ft)

NT2K91AA RS-232 Cable

Purpose—Used with COMPANION diagnostic PC terminal that connects to Meridian 1. This cable is used when the PC is connected to Meridian 1 using an internal modem located in the Remote Access Device (RAD).

Length—

- A0399143 3.0 m (10 ft)
- A0399144 7.5 m (25 ft)

NT5D16AA Meridian 1 Trunk Tip/Ring Cable

Purpose—Used to connect the 9-pin D-type TRK port on the NT5D12AA Dual DTI/PRI (DDP) card faceplate to the I/O filter.

Features—A 100¾ cable for Meridian 1 and Meridian SL-1 systems equipped with an I/O filter panel.

Length—2.5 m (8 ft)

NT5D17AA Meridian 1 Trunk Tip/Ring Cable

Purpose—Used to connect the 9-pin D-type TRK port on the DDP faceplate directly to the Network Channel Terminating Equipment (NCTE).

Features—A 100¾ cable for Meridian SL-1 systems not equipped with an I/O filter panel. For Meridian SL-1 systems with an I/O filter panel, use QCAD133 PRI/DTI I/O to MDF Cable.

Length—15 m (50 ft)

NT5D19AA Maintenance cable

Purpose—Used to connect the terminal to the 50-pin tip/ring connector on the IPE module I/O panel. This cable requires a nullmodem for proper connection to the MMI terminal.

NT5D50AA DBX Ribbon Cable

Purpose—Used to transfer the database when upgrading Omega systems to the NT5D61 IODU/C card. This cable is used to connect the NT5D54AA SCSI ribbon cable on the IODU/C card CD-ROM drive to the floppy drive A connector on the MDU/SMDU.

Features—A ribbon cable with a female connector and a male SCSI connector. When connected, the red edge of the NT5D50AA DBX Ribbon Cable should face towards the bottom of the IODU/C card (toward the edge of the card).

Length: 9 m (3 ft)

NT5K53AA Cable Assembly (UK only)

Purpose—This cable is used to connect the system to the cross-connect terminal.

Features—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

Length—15.2 m (52 ft)

NT5K54AA Cable Assembly (UK only)

Purpose—This cable is used to connect the system to the cross-connect terminal.

Features—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

Length—7.6 m

NT5K63AA Cable Assembly (UK only)

Purpose—This cable is used to connect the system to the cross-connect terminal

Features—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

Length—29.5 m

NT5K64AA Cable Assembly (UK only)

Purpose—This cable is used to connect the system to the cross-connect terminal.

Features—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—7.6 m

NT5K65AA Cable Assembly (UK only)

Purpose—This cable is used to connect the system to the cross-connect terminal.

Features—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—15.2 m

NT5K66AA Cable Assembly (UK only)

Purpose—This cable is used to connect the system to the cross-connect terminal

Features—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector on one end and three Krone Strips (237A) on the other. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—29.5 m

NT5K79AA Cable Assembly (UK only)

Purpose—This cable is used to connect the console to the cross-connect terminal

Features—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—15.3 m

NT5K80AA Cable Assembly (UK only)

Purpose—This cable is used to connect the console to the cross-connect terminal

Features—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—30.5 m

NT5K81AA Cable Assembly (UK only)

Purpose—This cable is used to connect the console to the cross-connect terminal

Features—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK. They are low smoke and fume, non-halogenated (LSF, non-hal) cables.

Length—91.4 m

NT5K1104 MDF to EEPE Cable

Purpose—This cable is used to connect the NT5K1106 EEPE backplane to the MDF connector panels in the EEPE module.

Length—20 in. (500 mm)

NT5K1109 Module to Module Power Harness

Purpose—This cable is used in DC modules to connect the input DC power and speed control signals vertically through the column. It is used to connect the EEPE module to the system.

NT5K1110 Intracabinet Network Cable

Purpose—This cable is used to connect the NT5K10AA Enhanced Dual Loop Buffer to the MDF panel.

Length—20 in. (500 mm)

NT6D54 Field Wiring Kit

Purpose—Used in conjunction with the cable between the NT8D22 System Monitor and a QBL15 Power Distribution Box. The kit provides the necessary hardware to connect four NT6D52 rectifiers to the system monitor.

NT7D11 Module to Module Power Harness

Purpose—Used in DC-powered modules to conduct the input DC power and control signals vertically through the column. It is constructed in a modular form and can be disconnected for the removal and/or replacement of modules. The DC power harness is larger than that of the AC system because it requires more input wires to handle lower voltage and the associated higher current.

NT7D67DA Local External Maintenance Cable Assembly

Purpose—Used with Options 21E, 51, 51C, 61, 61C, 71, 81, and 81C. Connects the TTY or the terminal and the SDI card to the I/O panel.

Length—120 cm (4 ft)

NT7D68AA Remote Carrier/Alarm Cable Assembly

Purpose—Used with Remote Carrier IPE floor-standing module configuration. Connects the NT7R52 Remote Carrier Interface card through the backplane connector to the I/O panel to provide T1 carrier span connection.

Length—120 cm (4 ft)

NT7D68BA Remote Maintenance Cable Assembly

Purpose—Used with Remote Carrier IPE floor-standing module configuration. Connects the NT7R52 Remote Carrier Interface card through the backplane connector to the I/O panel to provide TTY and system monitor connections.

Length—120 cm (4 ft)

NT7D68CA Remote Carrier/Alarm Cable Assembly to Small Cabinet

Purpose—Used with Remote Carrier IPE wall-mounted small cabinet configuration. Connects the NT7R52 Remote Carrier Interface card through the backplane P3 connector to the I/O panel to provide T1 carrier span connection.

Length—120 cm (4 ft)

NT7D68DA Remote Maintenance Cable Assembly to Small Cabinet

Purpose—Used with Remote Carrier IPE wall-mounted small cabinet configuration. Connects the NT7R52 Remote Carrier Interface card through the backplane P2 connector to the I/O panel to provide the TTY connection.

Length—120 cm (4 ft)

NT7D68EA Coaxial Interface Adapter Cable

Purpose—Used with Remote Carrier IPE configuration. Connects the RJ-48 connectors on the I/O panel assembly to the BNC E1 carrier span connectors.

Length—60 cm (2 ft)

NT7D69AA Extension Local Carrier Cable Assembly

Purpose—Used with STE, RT, NT, and XT systems. Connects the NT7R51 Local Carrier Interface faceplate to the NT7R67BA cable assembly.

Length—180 cm (6 ft)

NT7D69BA Extension Local Maintenance Cable Assembly

Purpose—Used with STE, RT, NT, and XT systems. Connects the NT7R51 Local Carrier Interface faceplate to the NT7R67CA cable assembly.

Length—180 cm (6 ft)

NT7D89 CP to I/O Panel RS-232 Cable

Purpose—Used with Options 51C, 61C, 81, and 81C. Through connectors on the rear of the backplane, it connects the maintenance port on the NT6D66 CP Card to the I/O panel in the Core and Core/Network modules. This “wye” connected cable provides both RS-232 DTE and DCE connections at the I/O panel. Two required per system.

Length—38 cm (15 in.)

NT7D90 CP to I/O Panel Ethernet Cable

Purpose—Used with Options 51C, 61C, 81, and 81C. Connects the Ethernet port on the NT6D66 CP Card to the I/O panel in the Core and Core/Network modules.

Length—34 cm (14 in.)

NT7R67AA Local Maintenance Cable Assembly

Purpose—Used with Options 21E, 51, 51C, 61, 61C, 71, 81, and 81C. Connects the NT7R51 Local Carrier Interface Card to the I/O panel.

Length—120 cm (4 ft)

NT7R67BA Local Carrier/Monitor Cable Assembly

Purpose—Used with Options 21E, 51, 51C, 61, 61C, 71, 81, and 81C. Connects the NT7R51 Local Carrier Interface Card to the I/O panel and to the T1 carrier span.

Length—120 cm (4 ft)

NT7R67CA Local Maintenance/Clock Cable Assembly

Purpose—Used with Options 21E, 51, 51C, 61, 61C, 71, 81, and 81C. Connects the NT7R51 Local Carrier Interface Card to the I/O panel and to the clock controller card.

Length—120 cm (4 ft) and 60 cm (2 ft) branches

NT7R67EA Coaxial Interface Adapter Cable

Purpose—Used with Options 21E, 51, 51C, 61, 61C, 71, 81, and 81C. Connects the RJ-48 connectors on the I/O panel assembly to the BNC connectors of the E1 carrier span.

Length—60 cm (2 ft)

NT8D40AA AC Power Cord

Purpose—Connects to an IG-L6-30 30-amp receptacle and conducts AC power into the pedestal for AC systems.

Length—2.7 m (9 ft)

NT8D40AM Module to Module Power Harness

Purpose—Used in AC modules to conduct the input AC power and control signals vertically through the column. It is constructed in a modular form and can be disconnected when necessary to allow for the removal and/or replacement of modules.

NT8D40AY AC Power Cord

Purpose—Used with Option 21A. Connects to an IG-L6-30 30-amp receptacle and conducts AC power into the pedestal.

Length—2.7 m (9 ft)

NT8D40BJ System Monitor to Backplane Cable

Purpose—Used with Option 21A. Connects the NT7D15 System Monitor to the CE/PE backplane to allow control and monitoring of the system.

NT8D40BK System Monitor Trip Cable

Purpose—Used with Option 21A. Connects the NT7D15 System Monitor to the PDU. Allows the system monitor to trip the circuit breaker.

NT8D46AA System Monitor Column Cable

Purpose—Connects NT8D22 System Monitor signals vertically through the column.

NT8D46AC Thermostat Harness

Purpose—The thermostat harness is part of the temperature sensor assembly. It contains two thermal sensors and a fault LED. At 70 degrees Celsius, the thermal sensors trip and cause system shutdown. The thermostat harness plugs into the backplane of the top module.

NT8D46AD System Monitor to SDI Cable

Purpose—Connects an SDI card to the NT8D22 System Monitor. Replaces the NT8D46AA cable when the SDI card is in the same column as the system monitor.

This cable is not used with the NT7D15 System Monitor in Option 21A.

NT8D46AG System Monitor to SDI Paddleboard Cable

Purpose—Connects the NT8D22 System Monitor to the NT8D41 SDI Paddleboard (use instead of the NT8D46AA cable).

This cable is not used with the NT7D15 System Monitor in Option 21A.

NT8D46AH System Monitor to MDF Cable

Purpose—Replaced by the NT8D46BH cable.

Connects the system monitor to the MDF when a PFTU is used.

Length—9.7 m (32 ft)

NT8D46AJ System Monitor to UPS (Best) Cable

Purpose—Connects the NT8D22 System Monitor to a Best uninterruptible power supply (UPS). Used for UPS monitoring.

This cable is not used with the NT7D15 System Monitor in Option 21A.

Length—13.7 m (45 ft)

NT8D46AL System Monitor Serial Link Cable

Purpose—Connects the NT8D22 System Monitor from one column to another.

This cable is not used with the NT7D15 System Monitor in Option 21A.

Length—2.1 m (7 ft)

NT8D46AM Air Probe Harness AC

Purpose—The Air Probe Harness AC is part of the temperature sensor assembly and is used in AC systems. It uses a 24-pin connector. It senses exit air temperature and relates the information to the blower unit.

NT8D46AP System Monitor Serial Link Cable

Purpose—Connects the NT8D22 System Monitor from one column to another.

This cable is not used with the NT7D15 System Monitor in Option 21A.

Length—7.6 m (25 ft)

NT8D46AQ System Monitor to UPS (Exide) Cable

Purpose—Connects the NT8D22 System Monitor to an Exide uninterruptible power supply (UPS). Used for UPS monitoring.

This cable is not used with the NT7D15 System Monitor in Option 21A.

Length—13.7 m (45 ft)

NT8D46AS System Monitor Inter-CPU Cable

Purpose—Used with Options 61, 61C, 71, 81, and 81C. Connects the dual CPUs together for NT8D22 System Monitor functions. Replaces the NT8D46AA cable in both CPU modules.

This cable is not used with the NT7D15 System Monitor in Option 21A.

NT8D46AT System Monitor to QBL15 Cable

Purpose—Connects the NT8D22 System Monitor to the QBL15 Power Distribution Box. Used to monitor the DC power plant.

Length—9.7 m (32 ft)

NT8D46AU System Monitor to UPS (Alpha) Cable

Purpose—Connects the NT8D22 System Monitor to an Alpha uninterruptible power supply (UPS). Used for UPS monitoring.

This cable is not used with the NT7D15 System Monitor in Option 21A.

Length—13.7 m (45 ft)

NT8D46AV System Monitor to Power Cabinet Cable

Purpose—Connects the NT8D22 System Monitor to the MFA150 Power System, MPP600 Power Plant, or QCA13 Power Cabinet. Used to monitor the DC power plant.

Length—9.7 m (32 ft)

NT8D46AW System Monitor to QBL12 Cable

Purpose—Connects the NT8D22 System Monitor to the QBL12 Battery Distribution Box. Used to monitor the DC power plant.

Length—9.7 m (32 ft)

NT8D46BH System Monitor to MDF Cable

Purpose—Replaces the NT8D46AH cable.

Connects the system monitor to the MDF when a power failure transfer unit is used.

Length—9.7 m (32 ft)

NT8D46BV System Monitor to Power Cabinet Cable

Purpose—Connects the NT8D22 System Monitor to the MFA150 Power System, MPP600 Power Plant, or QCA13 Power Cabinet. Used to monitor the DC power plant.

Length—19.5 m (64 ft)

NT8D46CC System Monitor to Power Supply PCB Cable

Purpose—Connects the NT8D22 System Monitor to the power supply printed circuit board (PCB) in the NT7D67CB PDU.

NT8D46CV System Monitor to Power Cabinet Cable

Purpose—Connects the NT8D22 System Monitor to the MFA150 Power System, MPP600 Power Plant, or QCA13 Power Cabinet. Used to monitor the DC power plant.

Length—30.5 m (100 ft)

NT8D46DC Air Probe Harness DC

Purpose—The Air Probe Harness DC is part of the temperature sensor assembly and is used in DC systems. It uses a 36-pin connector. It senses exit air temperature and relates the information to the blower unit.

NT8D73 Intercabinet Network Cable

Purpose—Interconnects QPC414 Network Cards:

- from Network module to PE module or local site RPE module through the I/O panels
- from QCA55 cabinet to PE module

Lengths—

- | | |
|------------|---------------|
| • NT8D73AD | 1.8 m (6 ft) |
| • NT8D73AF | 3.6 m (12 ft) |
| • NT8D73AL | 6.0 m (20 ft) |
| • NT8D73AS | 9.1 m (30 ft) |

NT8D74 Clock Controller to Junctor Cable

Purpose—Connects the clock controller card to the junctor board in the NT8D36 InterGroup Module.

Lengths—

- | | |
|------------|---------------|
| • NT8D74BC | 1.2 m (4 ft) |
| • NT8D74BD | 1.8 m (6 ft) |
| • NT8D74BE | 2.4 m (8 ft) |
| • NT8D74BF | 3.0 m (10 ft) |
| • NT8D74BJ | 4.8 m (16 ft) |

NT8D75 Clock Controller to Clock Controller Cable

Purpose—Interconnects clock controller cards.

Lengths—

- NT8D75BC 1.2 m (4 ft)
- NT8D75BD 1.8 m (6 ft)

NT8D76 IGS to InterGroup Module Cable

Purpose—Connects the QPC412 IGS Card to the junctor board in the NT8D36 InterGroup Module.

Lengths—

- NT8D76BC 1.2 m (4 ft)
- NT8D76BD 1.5 m (5 ft)
- NT8D76BE 1.8 m (6 ft)
- NT8D76BF 2.4 m (8 ft)
- NT8D76BG 3.0 m (10 ft)
- NT8D76BJ 3.6 m (12 ft)
- NT8D76BL 4.2 m (14 ft)
- NT8D76BP 4.8 m (16 ft)

Note: NT8D76BP is the longest CISPR cable for junctor to IGS application)

NT8D77 FDI to FDU Cable

Purpose—Connects the QPC742 FDI Card to the floppy disk unit.

Lengths—

- NT8D77BA 0.9 m (3 ft)
- NT8D77BB 0.6 m (2 ft)
- NT8D77BC 1.2 m (4 ft)
- NT8D77BD 1.8 m (6 ft)

NT8D78 CPU Cable

Purpose—Used in Option 71. Connects the QPC580 CPU Interface Card to the QPC579 CPU Function Card.

Length—5 cm (2 in.)

NT8D79 PRI/DTI to Clock Controller Cable

Purpose—Connects the PRI or DTI cards designated as primary and secondary clock references to the clock controller cards.

Lengths—

- | | |
|------------|---------------|
| • NT8D79AB | 0.6 m (2 ft) |
| • NT8D79AC | 1.2 m (4 ft) |
| • NT8D79AD | 1.8 m (6 ft) |
| • NT8D79AE | 2.4 m (8 ft) |
| • NT8D79AF | 3.0 m (10 ft) |

NT8D80 CPU Interface Cable

Purpose—

- connects the CMA card on CPU 0 to the CMA card on CPU 1 (Options 61 and 71)
- connects a QPC584 MSI Card to the multi disk unit (Options 51, 61, and 71)
- connects a QPC215 SBE Card to the network through the QPC441 3PE Card (Option 71)
- connects the QPC441 3PE Card in network shelf 0 to the 3PE Card in network shelf 1 (Option 61)
- connects the QPC441F 3PE Card in the Core/Network Module 0 to the QPC441F 3PE Card in the Core/Network Module 1 (Options 61C and 81C)

- connects the QPC441F 3PE Card in Core Module 0 to the 3PE Card in Core Module 1 (Option 81)
- connects the QPC441F 3PE Card in the Core/Network Module 0 to the 3PE card in the Core/Network Module 1 (Option 81C)

Lengths—

• NT8D80AB	NT8D80BB	0.6 m (2 ft)
• NT8D80AC	NT8D80BC	1.2 m (4 ft)
• NT8D80AZ	NT8D80BZ	1.5 m (5 ft)
• NT8D80AD	NT8D80BD	1.8 m (6 ft)
• NT8D80AE	NT8D80BE	2.4 m (8 ft)
• NT8D80AF	NT8D80BF	3.0 m (10 ft)
• NT8D80AG	NT8D80BG	3.6 m (12 ft)
• NT8D80AJ	NT8D80BJ	4.8 m (16 ft)
• NT8D80AL	NT8D80BL	6.0 m (20 ft)
• NT8D80AP	NT8D80BP	7.6 m (25 ft)

NT8D81 Tip and Ring Cable

Purpose—Connects a line card to the I/O panel. The ribbon cable is attached to the EMI filter.

Length—50 cm (20 in.)

NT8D82 SDI to I/O Cable

Purpose— This cable assembly also includes the EMI filter. Connects the following cards to the I/O panel:

- QPC757 DCHI Card
- QPC513 ESDI Card
- QPC841 4-Port SDI Card
- QPC687 CPU Card

Lengths—

- NT8D82AC 1.2 m (4 ft)
- NT8D82AD 1.8 m (6 ft)

NT8D83 PRI/DTI to I/O Cable

Purpose— This cable assembly also includes the EMI filter. Connects the T1 port on a PRI or DTI card to the I/O panel.

Lengths—

- NT8D83AC 1.2 m (4 ft)
- NT8D83AD 1.8 m (6 ft)

NT8D84AA SDI Paddleboard to I/O Cable

Purpose— This cable assembly also includes the EMI filter. Connects the NT8D41 SDI Paddleboard to the I/O panel.

Length—45.7 cm (18 in.)

NT8D84BA System Monitor to I/O Cable

Purpose— This cable assembly also includes the EMI filter. Connects the NT7D15 System Monitor to the I/O panel.

Length—45.7 cm (18 in.)

NT8D85 Network to PE Cable

Purpose—Connects the following:

- CMA card on CPU 0 to the CMA card on CPU 1 (Options 61 and 71)
- QPC414 Network Card to PRI or DTI card
- QPC414 Network Card to QPC659 DLB Card (for internal cabling only)
- QPC414 Network Card to E and F connectors on the NT8D47 RPE module, used only for internal cabinet connections
- QPC659 DLB Card to QPC659 DLB Card when connecting two NT8D13 PE Modules together

Lengths—

- | | |
|------------|----------------|
| • NT8D85BB | 0.6 m (2 ft) |
| • NT8D85BC | 1.2 m (4 ft) |
| • NT8D85BZ | 1.5 m (5 ft) |
| • NT8D85BD | 1.8 m (6 ft) |
| • NT8D85BE | 2.4 m (8 ft) |
| • NT8D85BF | 3.0 m (10 ft) |
| • NT8D85BJ | 4.8 m (16 ft) |
| • NT8D85BL | 6.0 m (20 ft) |
| • NT8D85BP | 7.6 m (25 ft) |
| • NT8D85BV | 10.7 m (35 ft) |

NT8D86 Network to I/O Cable

Purpose— This cable assembly also includes the EMI filter. Connects the following to the I/O panel:

- QPC414 Network Card
- PRI or DTI card
- QPC659 DLB Card
- NT8D47 RPE Module

Length—

- NT8D86AC 1.5 m (5 ft)
- NT8D86BD 1.8 m (6 ft)

NT8D87 Conference/TDS to Music Trunk Cable

Purpose—This cable is used to connect the NT8D17AA Conference/TDS Card to the music trunk or I/O connector panel.

Length—This cable is available in the following lengths:

- NT8D87AC 1.2 m (4 ft)
- NT8D87AD 1.8 m (6 ft)

NT8D88 Network to I/O Cable

Purpose— This cable assembly also includes the EMI filter. Connects the NT8D04 Superloop Network Card to the I/O panel.

Lengths—

- NT8D88AC 1.5 m (5 ft)
- NT8D88AD 1.8 m (6 ft)

NT8D90AF SDI Multiple-Port Cable

Purpose—An internal multiple-port extension cable for the QPC841 4-Port SDI Card. Connects from the I/O panel to the NT8D96AB cable.

Length—3 m (10 ft)

NT8D91 Network to Controller Cable

Purpose—Used for internal cabling to connect the NT8D04 Superloop Network Card to the NT8D01 Controller Card.

Lengths—

- NT8D91AC 1.2 m (4 ft)
- NT8D91AD 1.8 m (6 ft)
- NT8D91AE 2.4 m (8 ft)
- NT8D91AF 3.0 m (10 ft)
- NT8D91AG 3.6 m (12 ft)
- NT8D91AJ 4.8 m (16 ft)
- NT8D91AP 7.6 m (25 ft)
- NT8D91AT 10.6 m (35 ft)
- NT8D91AV 13.7 m (45 ft)

NT8D92AB Controller to I/O Cable

Purpose—Connects the NT8D01 Controller Card to the I/O panel. Used only when the network loop is cabled externally.

Length—50 cm (20 in.)

NT8D93 SDI Paddleboard I/O to DTE/DCE Cable

Purpose—Connects the NT8D41 SDI Paddleboard to DTE or DCE through the I/O panel.

Lengths—

- NT8D93AJ 4.8 m (16 ft)
- NT8D93AW 14.6 m (48 ft)

NT8D95 SDI I/O to DTE/DCE Cable

Purpose—Connects ports on the following cards to DTE or DCE through the I/O panel:

- QPC513 ESDI Card
- QPC841 4-Port SDI Card
- QPC687 CPU Card

Lengths—

- NT8D95AJ (male-to-male) 4.8 m (16 ft)
- NT8D95BJ (male-to-female) 4.8 m (16 ft)
- NT8D95AT (male-to-male) 10.3 m (34 ft)
- NT8D95BT (male-to-female) 10.3 m (34 ft)
- NT8D95AW (male-to-male) 14.6 m (48 ft)
- NT8D95BW (male-to-female) 14.6 m (48 ft)

NT8D96AB SDI Multiport Cable

Purpose—Three-way cable used with the QPC841 Quad Serial Data Interface Card. Connects external terminal equipment to the I/O panel.

Connects the PRI or DTI card to the MDF through the I/O panel.

Length—0.6 m (2 ft)

NT8D97AX PRI/DTI I/O to MDF Cable

Purpose—This cable connects the PRI/DTI card to the MDF via the I/O connector panel.

Length—15.2 m (50 ft)

NT8D98 Intercabinet Network Cable

Purpose—Interconnects NT8D04 Superloop Network Cards:

- from Network module to IPE module through the I/O panel
- from QCA55 cabinet to IPE module (used for system upgrades)

Lengths—

- NT8D98AD 1.8 m (6 ft)
- NT8D98AF 3.6 m (12 ft)
- NT8D98AL 6.0 m (20 ft)
- NT8D98AS 9.1 m (30 ft)
- NT8D98AT 11.5 m (38 ft)

(NT8D98AT not for QCA55 cabinet application)

NT8D99 CPU to Network Cable

Purpose—Interconnects NT8D35 Network Modules in a full group configuration. Connects to backplane connector A, B, C, D, or E (therefore, it is also known as the ABCDE cable).

Lengths—

- NT8D99BB 0.65 m (26 in)
- NT8D99AC 1.2 m (4 ft)
- NT8D99BD 1.95 m (66 in)

NT9D47 EMSI to SMDU Data Cable

Purpose—Connects an NT9D34 EMSI Card to the NT9D33 SMDU (Option 21E, STE system).

Lengths—

- NT9D47AB 0.6 m (2 ft)
- NT9D47AD 1.8 m (6 ft)

NT9D66 EMSI to SMDU Power Cable

Purpose—Connects an NT9D34 EMSI Card to the NT9D33 SMDU (Option 21E, STE system).

Lengths—

- NT9D66AB 0.6 m (2 ft)
- NT9D66AD 1.8 m (6 ft)

NT9D89 EMSI to MDU Data Cable

Purpose—Connects an NT9D34 EMSI Card to the NTND16 or NT8D69 MDU (Options 51/61/71).

Lengths—

- NT9D89AB 0.6 m (2 ft)
- NT9D89AD 1.8 m (6 ft)

NT9J93AD PRI/DTI Echo Canceler to I/O Cable

Purpose—Connects the PRI or DTI echo canceler port to the I/O panel.

Length—1.8 m (6 ft)

NT9J94AB RPE to I/O Cable

Purpose—This cable is used to connect the NT8D47 RPE to the I/O connector panel.

Length—0.6 m (2 ft)

NT9J96 Intracabinet Network Cable

Purpose—Used for system upgrades. Connects the QPC414 Network Card to the I/O panel within a QCA55 cabinet.

Lengths—

- NT9J96AC 1.0 m (40 in.)
- NT9J96AD 1.8 m (70 in.)
- NT9J96AE 2.2 m (85 in.)
- NT9J96AG 3.6 m (12 ft)
- NT9J96AH 4.3 m (14 ft)
- NT9J96AJ 4.8 m (16 ft)

NT9J97 Intracabinet Network Cable

Purpose—Used for system upgrades. Connects the NT8D04 Superloop Network Card to the I/O panel in a QCA55 cabinet.

Lengths—

- NT9J97AC 1.0 m (40 in.)
- NT9J97AD 1.8 m (70 in.)
- NT9J97AE 2.2 m (85 in.)
- NT9J97AG 3.6 m (12 ft)
- NT9J97AH 4.3 m (14 ft)
- NT9J97AJ 4.8 m (16 ft)

NT9J98 Intracabinet Network Cable

Purpose—Used for system upgrades. Connects the QPC414 Network Card to the I/O panel of the QCA108 or QCA136 cabinet.

Lengths—

- NT9J98AC 1.0 m (40 in.)
- NT9J98AD 1.8 m (70 in.)
- NT9J98AE 2.2 m (85 in.)

NT9J99 Intracabinet Network Cable

Purpose—Used for system upgrades. Connects the NT8D04 Superloop Network Card to the I/O panel of the QCA108 or QCA136 cabinet.

Lengths—

- NT9J99AC 1.0 m (40 in.)
- NT9J99AD 1.8 m (70 in.)
- NT9J99AE 2.2 m (85 in.)

NTAG01AA Cable Assembly (UK only)

Purpose—This cable is used to connect the console to the cross-connect terminal.

Features—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

Length—0.5 m

NTAG02AA Cable Assembly (UK only)

Purpose—This cable is used to connect the console to the cross-connect terminal.

Features—25-pair, 24 AWG tinned copper conductors. The cable has a 90 degree, 25-pair D-type connector with two locking screws at one end and free-ended at the other end. These cables utilize a custom compounded jacketing that meets the requirements for specific PBX contracts in the UK.

Length—91.4 m

NTAG81AA Audio Cable

Purpose—Connects external analog music source or a recording device to the 3.5 mm Audio Jack on the NTAG36 Meridian Integrated RAN card faceplate. This is a splitter cable that provides the audio input signal on one connector and the audio output signal on the other connector.

NTAG81BA Maintenance Extender Cable

Purpose—Extends the NTAG81CA PC Maintenance cable or the NTAG81DA VLAN Maintenance cable when connecting a terminal to the NTAG36 Meridian Integrated RAN card. It is terminated with one 9-pin D-sub male and one 9-pin D-Sub female connector.

Length—5 m (16.4 feet)

NTAG81CA PC Maintenance Cable

Purpose—Connects the terminal to the NTAG36 Meridian Integrated RAN card maintenance port on the faceplate. It is terminated with an 8-pin Mini-DIN male connector and a 9-pin D-Sub female connector.

Length—3 m (9.8 feet)

NTAG81DA VLAN Maintenance Cable

Purpose—Connects the Mini-DIN maintenance connector on the NTAG36 Meridian Integrated RAN (MIRAN) faceplate to a terminal or to an adjacent MIRAN to form a LAN daisy chain. It is terminated with an 8-pin Mini-DIN connector on the common side and two 9-pin D-Sub connectors one male and one female, on the split side.

Length—3 m (9.8 feet)

NTAK410 Carrier Remote DC Power Cable

Purpose—Used to connect the cabinet to a reserve battery power supply or to a DC power source through the NTAK28 Junction Box.

Length—1.8 m (70 in.)

NTAK1204 Carrier Remote Inter-cabinet Cable

Purpose—Used to connect the main cabinet to the expansion unit in the small Carrier Remote IPE cabinet.

Length—2.2m (85 in.)

NTCG03 Reference Clock Cable

Purpose—Used to connect each of the CLK0 or CLK1 ports on the NT5D12AA Dual DTI/PRI (DDP) card to the primary or secondary source ports on the Clock Controller card 0 or 1.

Length—

- NTCG03AA 4.2 m (14 ft)
- NTCG03AB 0.84 m (2.8 ft)
- NTCG03AC 1.2 m (4.0 ft)
- NTCG03AD 2.1 m (7 ft)

NTCK46 External DCHI Cable

Purpose—Used to connect the NT5D12AA Dual DTI/PRI (DDP) card to the QPC757 DCHI D-Channel Handler card.

Length—

- NTCK46AA 1.8 m (6 ft)
- NTCK46AB 5.4 m (18 ft)
- NTCK46AC 10.6 m (35 ft)
- NTCK46AD 15.2 m (50 ft)

NTCK80 External MSDL Cable

Purpose—Used to connect the NT5D12AA Dual DTI-PRI (DDP) card to the NT6D80 MSDL card.

Length—

- NTCK80AA 1.8 m (6 ft)
- NTCK80AB 5.4 m (18 ft)
- NTCK80AC 10.6 m (35 ft)
- NTCK80AD 15.2 m (50 ft)

NTND11 CP to CP Cable

Purpose—Used with Options 61C, 81, and 81C. Through connectors on the rear of the backplane, connects the card slot for the NT6D66 CP Card in Core Module 0 to the card slot for the CP card in Core Module 1 in Option 81, and the NT6D66 CP Card in Core/Network Module 0 to the NT6D66 CP Card in Core/Network Module 1 for Options 61C and 81C. For Option 61C with Core/Network modules stacked in one column, NTND11AA (2 ft) is used. Two required per system.

Length—

- NTND11AA 0.6 m (2 ft.)
- NTND11BA 1.8 m (6 ft.)

NTND13 IOP to IOP SCSI Cable

Purpose—Used with Options 61C, 81, and 81C. Through connectors on the rear of the backplane, connects the card slot for the NT6D63 IOP Card in Core Module 0 to the card slot for the IOP card in Core Module 1 for Option 81 and connects the card slot for the NT6D63 IOP Card in Core/Network Module 0 to the NT6D63 IOP Card in the Core/Network Module 1.

It connects the card slot for the NT5D20 IOP/CMDU Card in Core/Network Module 0 to the NT5D20 IOP/CMDU Card in the Core/Network Module 1 in Option 81C. One required per system.

Length—NTND13BC1.8 m (6 ft)

NTND14 CNI to 3PE Cable

Purpose—Used with Options 81 and 81C. Through connectors on the rear of the backplane, connects ports on the NT6D65 CNI or NTRB34 CNI-3 Card to the network through the QPC441 3PE Card. Two required per CNI or CNI-3 card.

Lengths—

- NTND14BA 1.8 m (6 ft)
- NTND14BB 2.5 m (8 ft)
- NTND14BC 3.0 m (10 ft)
- NTND14BD 3.6 m (12 ft)
- NTND14BE 7.6 m (25 ft)

NTND26 MSDL DCHI Interface Cable

Purpose—Connects a multipurpose serial data link (MSDL) port to the ISDN PRI trunk connector for DCH.

Lengths—

- NTND26AA 1.8 m (6 ft)
- NTND26AB 5.5 m (18 ft)
- NTND26AC 10.6 m (35 ft)
- NTND26AD 15.2 m (50 ft)

NTND27AB MSDL to I/O Panel Cable

Purpose—Connects an MSDL port to the I/O panel.

Length—1.8 m (6 ft)

NTND28 Intercabinet Cable

Purpose—Used for upgrades to Option 81 and 81C. Connects NT6D60 Core Modules to an EMI-filter connector housing on QCA55 or QCA108 Cabinets for Option 81 and connects NT5D21 Core/Network Modules to an EMI-filter connector housing on QCA55 or QCA108 Cabinets for Option 81C. Quantity required is determined by the system configuration.

Included in the NTND33 Core Module Upgrade Kits.

Lengths—

- NTND28BA 4 m (13 ft)
- NTND28BB 4.8 m (16 ft)
- NTND28BC 6.7 m (22 ft)

NTND33 Core Module Upgrade Kit

Purpose—Sets of cables and a connector housing used with Core module upgrades to Option 81:

- NTND33CB Clock/Group 0 Kit—provides cables for the clock controller card and a single network group (Group 0)
- NTND33CC Two-Group Kit—provides the cables for network groups other than Group 0; one kit required for groups 1 and 2; an additional kit required for groups 3 and 4; used with the NTND33CB kit. This kit can also be used when upgrading to Option 81C.

Note: The NTND33CB Clock/Group 0 Kit replaces the NTND33BB Group 0 Kit. The NTND33CC Two-Group Kit replaces the NTND33BC Group 1–2 and NTND33BD Group 3–4 Kits.

NTND33CA Network Expansion Kit

Purpose—Sets of cables and connector housings used to add additional network groups.

Length—NTND28BA 4 m (13 ft)

NTND37 Dual SDI Cable

Purpose—Used with Option 21E. The external interface between SDI ports configured on the NTND02 MSPS Card and the SDI devices. One end of the cable has one connector, which attaches to the I/O panel. The other end of the cable has two connectors, each of which attaches to a DTE or DCE device.

NTND94 CNI to I/O Panel Cable

Purpose—Used for upgrades to Options 81 and 81C. Through connectors on the rear of the backplane, connects the two ports on the NT6D65 CNI Card to the I/O panel in the Core or Core/Network module. Two required per half group.

Included in the NTND33 Core Module Upgrade Kits.

Lengths—NTND94DA 0.5 m (20 in.)

NTND95 3PE to Connector Housing Cable

Purpose—Used for upgrades to Options 81 and 81C. Connects QPC441 3PE Cards in Network modules to an EMI-filter connector housing. Two required per half group.

Included in the NTND33 Core Module Upgrade Kits.

Length—2.5 m (8 ft)

NTRC46 Clock to FIJI Cable

Purpose—Used to connect the Clock Controller cards and the FIJI cards in Group 0. Two required per system.

Lengths

- NTRC46AA 4 ft - 13.5* ft
- NTRC46BA 5.5 ft - 8* ft
- NTRC46CA 22 ft - 22* ft

* Indicates the lengths of the two "Y" terminations.

NTRC47 FIJI to FIJI Sync Cable

Purpose—Used to connect the FIJI cards in shelf 0 and shelf 1 (except group 0). One FIJI to FIJI Sync cable is required per network group.

Length:

- NTRC47AA 5 ft

NTRC48 Fiber Ring Cable

Purpose—Used to connect FIJI cards in a Fiber Network-based system. One ring cables the FIJI cards in all Network shelf 0, and a second ring cables the FIJI cards in Network shelf 1. One required per FIJI card.

Lengths

- NTRC48AA 6 ft
- NTRC48BA 10 ft
- NTRC48CA 12 ft
- NTRC48DA 14 ft
- NTRC48EA 19 ft
- NTRC48FA 26 ft
- NTRC48GA 32 ft
- NTRC48HA 50 ft

NTRC49 Clock to Clock Cable

Purpose—Used to connect Clock 0 to Clock 1 in a Fiber Network-based system. This cable also provides the connections to the NTRC46 cables that connect between the Clock Controllers and the FIJI cards in group 0. One Clock to Clock cable is required per system.

Lengths

- NTRC49AA 6 ft
- NTRC49BA 20 ft

P0704007 Superloop Adapter Plate

Purpose—Reduces the QPC414 network loop cutout to accept a superloop connection.

P0715058 Universal I/O Panel

System hardware—All

Purpose—Provides increased I/O panel capacity for QPC414 network loops that must extend outside the Meridian 1 module, or other connectivity provided by this panel.

QCA328AD Connector Cable

Purpose—Used to connect the PRI pack to the D-channel interface card, the QPC757 DCHI.

Features—25-pair cable with a 25-pin D-type male connector at one end and a 15-pin D-type male connector at the other end.

Lengths—

- QCAD328A 6 ft (1.8 m)
- QCAD328B 18 ft (5.5 m)

QCAD36A and QCAD37A Terminal Connector Cables

Purpose—To connect a serial data interface (SDI) circuit pack to a local data terminal or data communications equipment.

The QCAD36A connector is used when the data terminal is located within 16 cable ft (4.9 m) of the SDI card. For greater distances (up to 50 cable ft), use the QCAD37A connector.

Features—25-wire, 24 AWG standard EIA interface cable. Connectorized at both ends (90 degree. hoods), 16 ft (4.9 m) or 50 ft (15.2 m) in length.

Quantity—One cable for each terminal.

QCAD38A Connector Cable

Purpose—To interconnect two changeover and memory arbitrator packs in a dual-CPU configuration.

Features—25-pair cable; 2.5 ft (762 mm) in length.

QCAD40 Connector Cable

Purpose—Used in Meridian SL-1 S to connect the main tape unit to the tape interface pack; 3 ft (915 mm) in length.

Length—1 m (3 ft)

QCAD42 Connector Cable

Purpose—Used to connect an SDI port to the input/output panel.

Features—25-wire flat ribbon cable, 28 AWG, 95 in. (2413 mm) in length.

QCAD110 Connector Cable

Purpose—To interconnect the QPC411 System Clock Generator or QPC471 Clock Controller to the QPC417 Junctor.

Features—This 25-pair cable has a 180 degree connector at one end and a 90 degree connector at the other.

QCAD115 Connector Cable

Purpose—Used to connect PE shelf to Input/Output panel.

Features—25-pair ribbon cable, 26 AWG, 20 in. (508 mm) in length. Two 50-pin connections.

QCAD116 Connector Cable

Purpose—Used to connect a PE shelf to the input/output panel.

Features—25-pair flat ribbon cable, 26 AWG, 40 in. (1016 mm) in length. Two 50-pin connectors.

QCAD117 Connector Cable

Purpose—Used to connect a PE shelf to the input/output panel.

Features—25-pair flat ribbon cable, 26 AWG, 60 in. (1651 mm) in length. Two 50-pin connectors.

QCAD118 Connector Cable

Purpose—Used to connect a PE shelf to the input/output panel.

Features—25-pair flat ribbon cable, 26 AWG, 80 in. (2032 mm) in length. Two 50-pin connectors.

QCAD119 Connector Cable

Purpose—Used to connect an SDI port to the input/output panel.

Features—25-wire flat ribbon cable, 28 AWG, 65 in. (1651 mm) in length.

QCAD120 Connector Cable

Purpose—Used to connect an SDI port to the input/output panel.

Features—25-wire flat ribbon cable, 28 AWG, 75 in. (1905 mm) in length.

QCAD121 Connector Cable

Purpose—Used to connect an SDI port to the input/output panel.

Features—25-wire flat ribbon cable, 28 AWG, 45 in. (1143 mm) in length.

QCAD122 Connector Cable

Purpose—Interconnects the QPC412 InterGroup Switch pack to the QPC417 Junctor.

Features—25-pair cable; has a 180 degree connector at one end and a 90 degree connector at the other. Available in lengths of 4 ft (1220 mm), 6 ft (1830 mm), 10 ft (3050 mm), and 20 ft (6100 mm).

QCAD123 Connector Cable

Purpose—Interconnects two changeover and memory arbitrator packs in a dual-CPU configuration or connects the bus extender pack with the three-port extender.

Features—25-pair cable. Available in lengths of 2 ft (610 mm), 3 ft (915 mm), 4 ft (1220 mm), 6 ft (1830 mm), 10 ft (3050 mm), and 20 ft (6100 mm).

QCAD124 Connector Cable

Purpose—

- to connect each network circuit pack to a group of PE shelves
- to interconnect network extender circuit packs
- to interconnect PE shelves in the same network loop
- to interconnect tone and digit switch circuit packs
- to connect multigroup switch packs to multigroup extender packs
- to interconnect multigroup extender packs

Features—18-pair, 26 AWG tight-twisted cable, connectorized at both ends (90 degree connectors). Use NE-A18Q for 180 degree connectors.

Lengths—

FT	MMFT	MM
3	915	20 6100
4	1220	25 7600
6	1830	35 10700
10	3050	45 13800
15	4560	50 15240

QCAD125 Connector Cable

Purpose—Connects clock controller 0 to clock controller 1. This is a 25-pair cable with a 50-pin, 90 degree connector on each end.

Length—3 m (10 ft)

QCAD126 Connector Cable

Purpose—Connects the CPU bus to the option shelf in Meridian SL-1 S. Has 90 degree connector hoods at each end.

Length—1.5 m (5 ft)

QCAD128 Connector Cable

Purpose—Connects the QPC472 DTI Carrier Interface connector (J5) to the cabinet filter panel. A 15-conductor flat ribbon cable with a 15-pin D-type female connector at one end and a 15-pin D-type male connector at the other.

Length—2.1 m (7 ft)

QCAD129 Connector Cable

Purpose—Connects QPC472 DTI Echo Canceller connector (J4) to the cabinet filter panel in a shielded cabinet or directly to the Echo Canceller via a standard RS-232-C cable.

Features—A 10-conductor twisted pair cable with a 15-pin D-type male connector at one end and a 25-pin D-type female connector at the other.

QCAD130 Connector Cable

Purpose—Connects QPC472 DTI Reference Clock connector (J1 or J2) to the QPC471 Clock Controller.

Features—A 9-conductor flat ribbon cable terminated at both ends with a 9-pin D-type connector.

QCAD133 PRI/DTI I/O to MDF Cable

Purpose—Provides shielded cable pairs to connect the PRI or DTI card to the MDF through the I/O panel. Also, connects the 15-pin I/O filter connector to the 15-pin (Network Channel Terminating Equipment (NCTE) connector.

Length—15.2 m (50 ft)

QCAD172 Connector Cable

Purpose—Used on the Meridian SL-1 N when an additional network shelf is required to mount Digital Trunk Interface cards (QPC472).

QCAD209 Connector Cable

Purpose—Used on the Meridian SL-1 N and XN when replacing a QUW1 magnetic tape unit with a mass storage unit.

QCAD253 Connector Cable

Purpose—Used on the Meridian SL-1 S to connect a mass storage module to the mass storage interface.

QCAD273 Power Connector Cable

Purpose—Used on the Meridian SL-1 SN and ST to carry 15A/125V.

QCAD274 Power Connector Cable

Purpose—Used on the Meridian SL-1 SN and ST to carry 20A/225V.

QCAD274A AC Power Cord

Purpose—Connects to an IG-L6-30 30-amp receptacle and conducts AC power to the NT6D52 rectifier.

Length—2.7 m (9 ft)

QCAD275 Power Connector Cable

Purpose—Used on the Meridian SL-1 SN and ST to carry 30A/125V.

QCAD276 Power Connector Cable

Purpose—Used on the Meridian SL-1 SN and ST for the second tier.

QCAD277 Power Connector Cable

Purpose—Used on the Meridian SL-1 SN and ST for the third tier.

QCAD278 Power Connector Cable

Purpose—Used on the Meridian SL-1 SN and ST for the base cabinet.

QCAD279 Power Connector Cable

Purpose—Used on the Meridian SL-1 SN and ST for the disk drive.

QCAD281 Connector Cable

Purpose—Used to connect a digital trunk or I/O panel to a cross-connect terminal.

QCAD282 Connector Cable

Purpose—Used to connect a digital trunk to an I/O panel (EMI systems only).

QCAD283 Power Connector Cable

Purpose—Used on the Meridian SL-1 SN and ST to carry 30A/150V.

QCAD287 Power Connector Cable

Purpose—Used on the Meridian SL-1 SN and ST for the power fail.

QCAD291 Connector Cable

Purpose—Used to connect a digital trunk to an I/O panel (SN/ST EMI systems).

QCAD293 Network Loop Connector Cable

Purpose—Used on the Meridian SL-1 SN and ST to connect from the network circuit pack to a peripheral buffer circuit pack to the PE shelf.

Lengths—Available in five different lengths to connect to the five PE shelf positions:

- A1 cable connects to PE shelf position 1
- A2 cable connects to PE shelf position 2
- A3 cable connects to PE shelf position 3
- A4 cable connects to PE shelf position 4
- A5 cable connects to PE shelf position 5

QCAD294 P10 Cable

Purpose—Used on the Meridian SL-1 SN and ST to extend P10 connections from cabinet to cross-connect terminal.

QCAD299 RPE Power Adapter Cable

Purpose—Used on the Meridian SL-1 SN and ST. Used in QCA144 to power shelves.

QCAD300 RPE Power Adapter Cable

Purpose—Used on the Meridian SL-1 SN and ST. Used in QCA146 to power shelves.

QCAD306 Power Adapter Cable

Purpose—Used to connect power to the QPC699 backplane, which is mounted in a QSD73 CE expansion shelf.

QCAD308 PE Cable Assembly

Purpose—Used on the Meridian SL-1 SN and ST. Power cable serving positions 1 through 4 in QCA137 PE cabinet.

QCAD309 Alarm Adapter Cable

Purpose—Used on the Meridian SL-1 SN and ST to extend alarm connections to alarm port in QCA136, QCA141 and QCA137 cabinets.

QCAD310 Ground Cable

Purpose—Used on the Meridian SL-1 SN and ST to extend ground connections for a CE cabinet to a PE cabinet.

QCAD311 Intracabinet Network Cable

Purpose—Used on the Meridian SL-1 SN and ST to connect PE shelves to the network loop in the cabinet. In addition:

- QCAD311A1: used in first tier of the PE expansion cabinet; also in A, L, M, MS converted to SN/ST
- QCAD311A2: used in second tier of the PE expansion cabinet
- QCAD311A3: used in third tier of the PE expansion cabinet
- QCAD311A4: connect SN and ST network to A, L, M, MS for ST upgrade
- QCAD311A5: connect SN and ST network to A, L, M, MS for ST upgrade
- QCAD311A6: connect SN and ST network to A, L, M, MS for ST upgrade

QCAD312 Intercabinet Network Cable

Purpose—Used on the Meridian SL-1 SN and ST to extend network loops from the CE cabinet to the PE cabinet.

QCAD313 PE Cable Assembly

Purpose—Used on the Meridian SL-1 SN and ST. Power cable serving positions 5 and 6 and cooling units in QCA137 cabinet.

QCAD320 Connector Cable

Purpose—Used on the Meridian SL-1 SN and ST to connect the QMM45 FDM to the QPC742 FDI. The cables are 3 ft and 6 ft long.

QCAD321 Power Adapter Cable

Purpose—Used on the Meridian SL-1 SN and ST to connect QCA136, QCA137, QCA141, QCA144, and QCA146 cabinets to a QBL15 battery distribution box.

QCAD328 PRI to DCHI Cable

Purpose—Connects the DCHI port (J5) on the QPC720 PRI Card to the odd port (J2) on the QPC757 DCHI Card.

Lengths—

- QCAD328A 1.8 m (6 ft)
- QCAD328B 5.5 m (18 ft)
- QCAD328C 10.6 m (35 ft)
- QCAD328D 15.2 m (50 ft)

QCAD332/333 3-Port SDI Cables

Purpose—Used to cable three SDI ports.

- QCAD332, 3 male to 1 female (internal ST cabinet use)
- QCAD333, 1 male to 3 female (external cabinet use)

QCB6 Tape Unit Connector Cable

Purpose—To connect the QUW-type tape unit to the tape interface circuit pack (QPC33).

Features—36-pair, 26 AWG tight-twisted cable. Connectorized at both ends.

Length—5 ft (1.52 m)

Quantity—One for each tape interface circuit pack

QCB12/13 Connector Cable

Purpose—To connect the QPC130 CDR tape control to the magnetic tape unit. Refer to *Call Detail Recording: Description and Formats* (553-2631-100).

Interface cables

System hardware—MS/N/N(QCA96)/XN/XN(QCA97)/NT/XT

Purpose—Twisted-pair cables used to interface PE shelves, alarms, power failure transfer units, and serial data interface circuit packs with equipment that is external to the Meridian SL-1 cabinet. Each cable terminates on a filter connector located in the cabinet top panel.

Lengths—Interface cables are available in the lengths shown in Table 5.

Table 5
Cables available (Part 1 of 2)

Cable description	Wires	Length inches	Length (mm)	Order code
QCAD115 PE Flat	50	20	(510)	A0295696
QCAD116 PE Flat	50	40	(1015)	A0295697
QCAD117 PE Flat	50	60	(1525)	A0295698
QCAD118 PE Flat	50	80	(2030)	A0295699
QCAD119 SDI Flat	25	65	(1650)	A0295999
QCAD120 SDI Flat	25	75	(1905)	A0296000
QCAD42 SDI Flat	25	95	(2415)	A0296285
QCAD137 SDI Flat	25	30	(760)	A0313143 (Note)
QCAD190 PE Round	50	74	(1880)	A0317608
QCAD191 PE Round	50	71	(1805)	A0317609

Note: The QCAD137 is used only with the S system hardware.

Table 5
Cables available (Part 2 of 2)

Cable description	Wires	Length inches	Length (mm)	Order code
QCAD192 PE Round	50	68	(1730)	A0317610
QCAD193 PE Round	50	61	(1550)	A0317611
QCAD194 PE Round	50	58	(1475)	A0317612
QCAD195 PE Round	50	55	(1400)	A0317613
QCAD196 PE Round	50	48	(1220)	A0317614
QCAD197 PE Round	50	43	(1095)	A0317615
QCAD198 PE Round	50	40	(1015)	A0317616
QCAD199 PE Round	50	33	(840)	A0317617
QCAD200 PE Round	50	30	(760)	A0317618
QCAD201 PE Round	50	27	(685)	A0317619
Note: The QCAD137 is used only with the S system hardware.				

Miscellaneous equipment

Content list

The following are the topics in this section:

- [A0345353 A/B-Switch 220](#)
- [A0377992 Black Box ABCDE-Switch 220](#)
- [A0638930 UDS FastTalk v.32/42b 220](#)
- [A0601396 Nullmodem 220](#)
- [A0601397 Nullmodem 220](#)
- [A0633651 40MB PCMCIA Flash Card 221](#)
- [A0773056, A0773059, A0773054, A0773055, A0634492, A0634493 Fiber Remote Multi-IPE 221](#)
- [A0634494 Fiber Remote Multi-IPE Rack Mount Shelf Option 221](#)
- [A0660403 3MB PCMCIA Flash Card 222](#)
- [NT5D52AA Ethernet Adapter card 222](#)
- [NT5D62 PCMCIA Hard Drive card 222](#)
- [NT7D0902 Rear Mount Conduit Kit 222](#)
- [NT7R94AA Bracket for Small Cabinet I/O Panel Assembly 222](#)
- [NT8D63 Overhead Cable Tray Kit 223](#)
- [NT8D1107 Superloop Adapter Plate 223](#)
- [P0745716 Universal I/O Panel 223](#)
- [P0741489 Backplane Cable Extraction Tool 223](#)

- [NT7D05 and NT8D31 Blank faceplates 224](#)
- [NT8D64 Earthquake bracing kit 224](#)

A0345353 A/B-Switch

System hardware—Options 51C/61C/81C

Purpose—Connects a remote PC, used as a Meridian 1 Companion diagnostic terminal, to Meridian 1. If also used for other applications, disconnects it from Meridian 1.

A0377992 Black Box ABCDE-Switch

System hardware—Options 51C/61C/81C

Purpose—Connects multiple SDI and CPSI ports to one terminal or one modem.

A0638930 UDS FastTalk v.32/42b

System hardware—Option 81C

Purpose—Verified for operation with Option 81C. Provides 9600 baud transmission. Equipped with a 6-ft power cord for a standard 110 V ac wall socket, a cable that connects to an RJ-11C jack, and an internal telephone jack for voice capability.

A0601396 Nullmodem

System hardware—Options 51C/61C/81C.

Purpose—Compact DB-25F/DB-25M nullmodem adapter.

A0601397 Nullmodem

System hardware—Options 51C/61C/81C.

Purpose—Compact DB-25F/DB-25F nullmodem adapter.

A0633651 40MB PCMCIA Flash Card

System hardware—options 51C/61C/81C which are running X11 release 21 and later software, and are equipped with the NTAG36 Meridian Integrated RAN (MIRAN) card.

Purpose—This PCMCIA Flash card provides additional memory storage when loaded on to an NTAG36 Meridian Integrated RAN (MIRAN) card. 1 MB of Flash memory provides up to two minutes of additional storage. This card provides over one hour of additional memory storage to MIRAN.

A0773056, A0773059, A0773054, A0773055, A0634492, A0634493 Fiber Remote Multi-IPE

System hardware—Options 51C/61C/81C.

Purpose—Provides Meridian 1 functionality to a Remote IPE via a fiber optic span. Select one of the following four varieties, depending on your environment:

- A0773056: Fiber Remote Multi-IPE - Single-mode (1-4 superloops)
- A0773059: Fiber Remote Multi-IPE - Single-mode (1-2 superloops)
- A0773054: Fiber Remote Multi-IPE - Multi-mode (1-4 superloops)
- A0773055: Fiber Remote Multi-IPE - Multi-mode (1-2 superloops)
- A0634492: Fiber Remote Multi-IPE - Single-mode, redundant option
- A0634493: Fiber Remote Multi-IPE - Multi-mode, redundant option

Note: The 1-2 superloop or 1-4 superloop version refers to the number of superloops transmitted over a single fiber span.

Quantity—One per Meridian 1 (required), and up to one per remote IPE.

A0634494 Fiber Remote Multi-IPE Rack Mount Shelf Option

System hardware—option 51C/61C/81C.

Purpose—Provides equipment to rack-mount the Fiber Remote Multi-IPE

Quantity—One per Fiber Remote Multi-IPE where rack mounting is desired.

A0660403 3MB PCMCIA Flash Card

System hardware—options 51C/61C/81C which are running X11 release 21 and later software, and are equipped with the NTAG36 Meridian Integrated RAN (MIRAN) card.

Purpose—This PCMCIA Flash card allows software enhancements or maintenance upgrades to be loaded on to the card and installed onto the NTAG36 MIRAN card.

NT5D52AA Ethernet Adapter card

System hardware—Options 51C/61C/81C.

Purpose—This adapter card is installed on the IPE module I/O panel only when the NT5D51 Meridian Integrated Conference Bridge (MICB) card is to be connected to the Ethernet.

NT5D62 PCMCIA Hard Drive card

System hardware—Options 51C/61C/81C.

Purpose—This PCMCIA card contains the software and configuration for the NT5D51 Meridian Integrated Conference Bridge (MICB) card. It must be installed into the lower PCMCIA drive for the MICB card to operate.

NT7D0902 Rear Mount Conduit Kit

System hardware—Options 51C/61C/81C (DC-power)

Purpose—Allows conduit to enter the NT7D67CB PDU from the rear (above the floor).

NT7R94AA Bracket for Small Cabinet I/O Panel Assembly

System hardware—All

Purpose—Bracket that modifies the Fibre Remote Carrier IPE cabinet so that the I/O panel assembly can connect to the Small Carrier Remote IPE cabinet.

Quantity—One per Small Carrier Remote IPE cabinet.

NT8D63 Overhead Cable Tray Kit

System hardware—All

Purpose—Holds I/O cables that go from the system to the MDF. Provides support for overhead cabling tray. Mounts to the highest module in each column. Though this kit does NOT include the cable tray, it does contain:

- support brackets
- front and rear top cap air grills with cutouts

NT8D1107 Superloop Adapter Plate

System hardware—All

Purpose—Reduces the QPC414 network loop cutout to accept a superloop connection.

P0745716 Universal I/O Panel

System hardware—All

Purpose—Provides increased I/O panel capacity for QPC414 network loops that must extend outside the Meridian 1 module, or other connectivity provided by this panel.

P0741489 Backplane Cable Extraction Tool

System hardware—Options 51C/61C/81C

Purpose—Used to disconnect cable connectors attached to the rear of the backplane in the NT6D60 Core Module, NT9D11 Core/Network Module, and NT5D21 Core/Network Module.

NT7D05 and NT8D31 Blank faceplates

System hardware—All

Purpose—An NT7D05 filler panel is required in a slot reserved for the ringing generator when a ringing generator is not used. Although not required, other unoccupied slots can be covered by any of the following blank faceplates, depending on the width of the slot:

- NT8D31AA 2.2 cm (0.875 in.)
- NT8D31AB 2.5 cm (1 in.)
- NT8D31AD 5 cm (2 in.)

NT8D64 Earthquake bracing kit

System hardware—All

Purpose—Holds all the parts of a column in place during a major physical disruption such as an earthquake. Used only for non-raised floor. Each kit contains:

- four threaded rods
- two tie bars
- miscellaneous hardware (such as nuts and washers)

Three earthquake bracing kits are available:

- NT8D64AA for two module columns
- NT8D64AB for three module columns
- NT8D64AC for four module columns

List of terms

Table 1 lists all of the mnemonics used in this document and their definitions.

Table 1
Glossary (Part 1 of 6)

Mnemonic	Description
ACD	Automatic Call Distribution
ADM	Add-On Data Module
AIM	Asynchronous Interface Module
AIOD	Automatically Identified Outward Dialing
ALU	Arithmetic Logic Unit
ANI	Automatic Number Identification
AOP	Attendant Overflow Position
ASIM	Asynchronous/Synchronous Interface Module
ATX	Autodial Tandem Transfer
BKI	Break-In
BLF	Busy Lamp Field
bps	Bits Per Second
BRI	Basic Rate Interface
BRIT	Basic Rate Interface Trunk
BTU	Bus Terminating Unit
CALL ID	Call ID
CAMA	Centralized Automatic Message Accounting
CAS	Centralized Attendant Service
CASM	Centralized Attendant Service—Main

Table 1
Glossary (Part 2 of 6)

Mnemonic	Description
CASR	Centralized Attendant Service—Remote
CBT	Core Bus Terminator
CC	Clock Controller
CDR	Call Detail Recording
CDRX	Call Detail Recording Enhancement
CE	Common Equipment
CGM	Console Graphics Module
CIM	Control, Interface, and Memory
CMA	Changeover and Memory Arbitrator
CMDU	Core Multi Drive Unit
CNI	Core Network Interface
CO	Central Office
CP	Call Processor
CPI	Computer Private Branch Exchange Interface
CPND	Call Party Name Display
CPU	Central Processing Unit
CRT	Cathode Ray Tube
CT	Control and Timing
DASS2	Digital Access Signaling System 2
DCE	Data Communication Equipment
DCHI	D-Channel Handler Interface
DCK	Recorded Telephone Dictation Trunk feature
DID	Direct Inward Dialing
DLB	Dual Loop Peripheral Buffer
DOD	Direct Outward Dialing
DPNSS1	Digital Private Network Signaling System 1
DTE	Data Terminal Equipment
DTI	Digital Trunk Interface
DTMF	Dual Tone Multifrequency

Table 1
Glossary (Part 3 of 6)

Mnemonic	Description
DTR	Digitone Receiver
EAR	Enhanced ACD Routing
ECT	Enhanced Call Treatment
EDRG	Executive Distinctive Ringing
EIA	Electronic Industry Association
EMI	Electromagnetic Interference
EQA	FCC Equal Access
ESN	Electronic Switched Network
EURO	Euro ISDN
FCDR	Format of Call Detail Recording
FDI	Floppy Disk Interface
FDM	Floppy Disk Module
FDU	Floppy Disk Unit
FM	Fully Modular
FN	Function
FRTA	French Type Approval
GRPI	1.5/2.0 Mbps ISDN Gateway
HOSP	Hospital Management
HSDC	High Speed Data Card
ICM	Integrated CPU/Memory
IDA	Integrated Digital Access
IGS	InterGroup Switch
INDB	International nB+D
I/O	Input/Output
IODU/C	Input/Output Disk Unit with CD-ROM
IOP	I/O Processor
IOP/CMDU	I/O Processor/Core Multi Drive Unit
IPB	InterProcessor Bus
IPE	Intelligent Peripheral Equipment

Table 1
Glossary (Part 4 of 6)

Mnemonic	Description
ISDLC	Integrated Services Digital Line Card
ISDN	Integrated Services Digital Network
IVR	Hold in Queue for Interactive Voice Response
KD3	Spanish Signaling Protocol
LCD	Liquid Crystal Display
LRE	Logic Return Equalizer
MCA	Meridian Communications Adapter
MCDR	Mini Call Detail Recording
MCDS	Multi-Channel Data System
MDF	Main Distribution Frame
MDU	Multi Disk Unit
MFC	Multifrequency Compelled Signaling
MFS	Multifrequency Signaling
MGC	Multigroup Control
MGE	Multigroup Extender
MGS	Multigroup Switch
MISP	Multipurpose ISDN Signaling Processor
MLIO	Multi-Language I/O
MLM	Meridian Link Module
MPDU	Module Power Distribution Unit
MSDL	Multipurpose Serial Data Link
MSI	Mass Storage Interface
MSPS	Misc/SDI/Peripheral Signaling
MSU	Mass Storage Unit
NT1	Network Termination Unit
OAID	Outgoing Automatic Incoming Dial
OANI	Outgoing Automatic Number Identification
OPAO	Outpulsing of Asterisk and Octothorpe
OPX	Off-Premises Extension

Table 1
Glossary (Part 5 of 6)

Mnemonic	Description
ORC	Originator Ringing Control
OVL P	Overlap Signaling
PAD	Packet Assembler/Disassembler
PBX	Private Branch Exchange
PCM	Pulse Code Modulation
PDU	Power Distribution Unit
PE	Peripheral Equipment
PFTU	Power Failure Transfer Unit
PHNT	Phantom Terminal Number Operation
PPM	Periodic Pulse Metering
PRA	Primary Rate Access
PRI	Primary Rate Interface
PROM	Programmable Read-Only Memory
PTE	Packet Transport Equipment
QM	Quarter Modular
QSDI	Quad Serial Data Interface
RAM	Random Access Memory
RAN	Recorded Announcement
RFI	Radio-Frequency Interference
ROM	Read-Only Memory
RPE	Remote Peripheral Equipment
RTC	Real-Time Clock
SAMM	Stand-Alone Meridian Mail
SBE	Segmented Bus Extender
SCG	System Clock Generator
SCSI	Small Computer System Interface
SDI	Serial Data Interface
SEQ	Sequencer
SILC	S/T Interface Line Card

Table 1
Glossary (Part 6 of 6)

Mnemonic	Description
SML	System Message Lookup
TCM	Time Compression Multiplexing
TDS	Tone and Digit Switch
THF	Trunk Hook Flash
TOPS	Traffic Operator Position System
TSPS	Traffic Service Position System
TTY	Teletype Machine
UEM	Universal Equipment Module
UK	United Kingdom
UILC	Universal Interface Line Card
UPS	Uninterruptible Power Supply
VNS	Virtual Network Services
XMFC	Extended Multifrequency Compelled Signaling
XMFE	Extended Multifrequency Signaling For Socotel
2DR	Two-Way, Dial Repeating
3PE	Three-Port Extender

Index

Symbols

μ-Law applications

- NT5K02DA Flexible Analog Line Card (France), 75
- NT5K18 Flexible Central Office Trunk Card, 84
- NT5K21AA Extended Multifrequency Compelled Sender/Receiver, 88
- NT5K48 Tone Detector Card, 90
- NT5K72AA E&M Tie Trunk Card, 98
- NT5K82BA/CA Central Office Trunk Card, 99
- NT5K82HA Central Office Trunk Card, 100
- NT5K83AA E&M Tie Trunk Card, 101
- NT5K83DA E&M Tie Trunk Card, 105
- NT5K83FA E&M Tie Trunk Card, 107
- NT5K83GA E&M Tie Trunk Card, 108
- NT5K83HA E&M Tie Trunk Card, 109
- NT5K84HA Direct Dial Inward Trunk Card, 113
- NT5K93AA Central Office Trunk Card, 115
- NT5K93BA Central Office Trunk Card (Norway), 116
- NT8D15 E&M Trunk Card, 127
- NTCK22AA Direct Inward Dial Trunk Card (Italy), 136
- QPC71 E&M/DX/Paging Trunk Card, 139
- QPC311 Data Line Card, 140
- QPC327 MFC Sender/Receiver Card, 140
- QPC391 Pulsed E&M Trunk Card, 141
- QPC449 Loop Signaling Trunk Card, 143
- QPC450 CO/FX/WATS Trunk Card, 143
- QPC452 Basic 500/2500 Line Card, 144
- QPC491 SL-1 Set Line Card, 144
- QPC532 Ground Button Recall Line Card, 147
- QPC574 Digitone Receiver, 148
- QPC577 Digitone Receiver DaughterBoard, 149
- QPC577 Digitone Receiver Daughterboard, 149
- QPC594 500/2500 Line Card, 149
- QPC650 Music Trunk Card, 151

Numerics

- 3PE to Connector Housing Cable (NTND95), 205
- 3-Port SDI Cables (QCAD332/333), 216
- 4-Port Data Line Card (QPC432), 142
- 3 MB PCMCIA Flash Card (A0660403), 222
- 40 MB PCMCIA Flash Card (A0633651), 221
- 500/2500 Line Card (QPC267), 140
- 500/2500 Line Card (QPC452), 144
- 500/2500 Line Card (QPC494), 144
- 500/2500 Line Card (QPC521), 146
- 500/2500 Line Card (QPC594), 149
- 500/2500 Line Card (QPC60), 139

A

- A0321130 Fan Unit, 37
- A0345353 A/B-Switch, 219
- A0355200 Power Failure Transfer Unit, 39
- A0367916 Power Supply -48V, 39
- A0377992 Black Box ABCDE-Switch, 220
- A0381391 UDS FastTalk v.32/42b, 220
- A0601396 Nullmodem, 220
- A0601397 Nullmodem, 220
- A0601464 Nullmodem Maintenance cable, 169
- A0633651 40 MB PCMCIA Flash Card, 221

- A0634488 Fiber Remote Multi-IPE, 221
- A0634489 Fiber Remote Multi-IPE, 221
- A0634490 Fiber Remote Multi-IPE, 221
- A0634491 Fiber Remote Multi-IPE, 221
- A0634492 Fiber Remote Multi-IPE, 221
- A0634493 Fiber Remote Multi-IPE, 221
- A0634494 Fiber Remote Multi-IPE Rack Mount Shelf Option, 221
- A0634495 Local Fiber Remote Multi-IPE Cable, 169
- A0634496 Remote Fiber Remote Multi-IPE Cable, 170
- A0634497 Fiber Remote Multi-IPE Maint. Cable, 170
- A0660403 3 MB PCMCIA Flash Card, 222
- ABCDE-Switch (A0377992), 220
- A/B-Switch (A0345353), 219
- AC Power Cord (NT8D40AA), 181
- AC Power Cord (NT8D40AV), 183
- AC Power Cord (QCAD274A), 212
- acronyms glossary, 225
- Add-on Data Module (QMT12), 158
- administration terminal (M7310), 158
- Air Probe Harness AC (NT8D46AM), 44, 184
- Air Probe Harness DC (NT8D46DC), 44, 187
- Alarm Adapter Cable (QCAD309), 214
- A-Law applications
 - NT5K02DA Flexible Analog Line Card (France), 75
 - NT5K18 Flexible Central Office Trunk Card, 84
 - NT5K21AA Extended Multifrequency Compelled Sender/Receiver, 88
 - NT5K48 Tone Detector Card, 90
 - NT5K70AB Central Office Trunk Card, 94
 - NT5K71AB Central Office Trunk Card, 96
 - NT5K72AA E&M Tie Trunk Card, 98
 - NT5K82BA/CA Central Office Trunk Card, 99
 - NT5K82HA Central Office Trunk Card, 100
 - NT5K83AA E&M Tie Trunk Card, 101
 - NT5K83DA E&M Tie Trunk Card, 105
 - NT5K83FA E&M Tie Trunk Card, 107
 - NT5K83GA E&M Tie Trunk Card, 108
 - NT5K83HA E&M Tie Trunk Card, 109
 - NT5K84HA Direct Dial Inward Trunk Card, 113
 - NT5K93AA Central Office Trunk Card, 115
 - NT5K93BA Central Office Trunk Card (Norway), 116
 - NT5K99AA/BA Central Office Trunk Card, 118
 - NT8D15 E&M Trunk Card, 127
 - NTCK22AA Direct Inward Dial Trunk Card (Italy), 136
 - QPC327 MFC Sender/Receiver Card, 140
 - QPC341 Data Line Card, 140
 - QPC343 Modem Pool Line Card, 141
 - QPC390 Pulsed E&M Trunk Card, 141
 - QPC520 SL-1 Line Card, 145
 - QPC521 500/2500 Line Card, 146
 - QPC526 CO/FX/WATS Trunk Card with PPM, 146
 - QPC527 CO/FX/WATS Trunk Card, 146
 - QPC532 Ground Button Recall Line Card, 147
 - QPC558 Message Waiting Line Card, 148
 - QPC559 Loop Signaling Trunk Card, 148
 - QPC595 Digitone Receiver, 150
 - QPC596 Digitone Receiver Daughterboard, 150
 - QPC651 Music Trunk Card, 151
- Analog Line Card (NT5K02AB), 74
- Analog Line Card (NT5K02DA), 75
- Analog Line Card (NT5K02JA), 76
- Analog Line Card (NT5K02KA), 76
- Analog Line Card (NT5K02LB), 77
- Analog Line Card (NT5K02MA), 78
- Analog Line Card (NT5K02NB), 78
- Analog Line Card (NT5K02SA), 79
- Analog Line Card (NT5K96JA), 117
- Analog Line Card (NT5K96KA), 117
- Analog Line Card (NT5K96MA), 117
- Analog Line Card (NT5K96NB), 117
- Analog Line Card (NT5K96SA), 118
- Analog Line Card (NT8D03), 124
- Analog Message Waiting Line Card (NT8D09), 124
- application equipment modules
 - related documentation, 26

- Argentina
 Generic Central Office Trunk Card (NTCK16), 134
 asynchronous data options, 159
 Asynchronous Interface Line Card (QPC430), 142
 Asynchronous/Synchronous Interface Module (QMT11), 158
 attendant administration overlay template, 159
 Attendant Console Monitor Card (QPC297), 140
 Attendant Console Monitor Card (QPC342), 140
 attendant handset assembly, 159
 Audio Cable (NTAG81AA), 199
 Australia
 Central Office Trunk Card (NT5K82BA/CA), 99
 Direct Dial Inward (DDI) Trunk Card (NT5K84BA), 112
 E&M Tie Trunk Card (NT5K83EA), 106
 Flexible Analog Line Card (NT5K02AB), 74
 Austria
 Central Office Trunk Card (NT5K70AB), 94
 Central Office Trunk Card (NT5K71AB), 96
 DID/DOD Trunk Card (NT5K36AB), 89
 Direct Inward Dial Auto Answer Circuit (NT5K92AA), 115
 E&M Tie Trunk Card (NT5K72AA), 97
- B**
- Bahrain
 Generic Central Office Trunk Card (NTCK16), 134
 base station
 COMPANION C1110, 157
 Basic 500/2500 Line Card (QPC452), 144
 Basic Rate Concentrator Signaling Card (NT6D72), 121
 Battery Distribution Box (QBL12), 46
 Belgium
 Central Office Trunk Card (NT5K82HA), 100
 Direct Inward Dial (DID) Trunk Card (NT5K84HA), 113
 E&M Tie Trunk Card (NT5K83HA), 109
 Black Box ABCDE-Switch (A037792), 220
 blank faceplates, 224
 blower units, 44
 Bracket-Small Cabinet I/O Ass'y (NT7R62AA), 222
 Brazil
 NTCK16 Generic Central Office Trunk Card, 134
 Bypass Faceplate Cable Harness (NPS50843-7L02), 172
- C**
- C3020 Shaye Handset, 156
 cabinets, 29
 Cable Assembly (NT5K53AA), 176
 Cable Assembly (NT5K54AA), 176
 Cable Assembly (NT5K63AA), 177
 Cable Assembly (NT5K64AA), 177
 Cable Assembly (NT5K65AA), 177
 Cable Assembly (NT5K66AA), 178
 Cable Assembly (NT5K79AA), 178
 Cable Assembly (NT5K80AA), 178
 Cable Assembly (NT5K81AA), 179
 Cable Assembly (NTAG01AA), 199
 Cable Assembly (NTAG02AA), 199
 Cable Tray Kit (NT8D63), 223
 cables, 161
 Call Processor Card (NT5D03), 49
 Call Processor Card (NT5D10), 50
 Call Processor Card (NT9D19), 58
 card cage assemblies, 35
 card slot assignment documentation, 30
 Carrier Remote DC Power Cable (NTAK410), 200
 Carrier Remote Inter-cabinet Cable (NTAK1204), 200
 CE Cabinet (QCA55), 36
 CE Module Power Distribution Unit (NT8D56AA), 45
 CE Power Supply AC (NT8D29), 43
 CE Power Supply DC (NT6D41), 41
 Central Office Trunk Card (NT5K18BA), 85
 Central Office Trunk Card (NT5K70AA), 94
 Central Office Trunk Card (NT5K71AA), 95

- Central Office Trunk Card (NT5K71AB), 96
- Central Office Trunk Card (NT5K82AA), 98
- Central Office Trunk Card (NT5K82BA/CA), 99
- Central Office Trunk Card (NT5K82HA), 100
- Central Office Trunk Card (NT5K90AA), 114
- Central Office Trunk Card (NT5K90BA), 114
- Central Office Trunk Card (NT5K93AA), 115
- Central Office Trunk Card (NT5K93BA), 116
- Central Office Trunk Card (NT5K99AA/BA), 118
- Central Office Trunk Card (NTAG03AA), 128
- Central Office Trunk Card (NTCK16), 133
- Central Office Trunk Card (NTCK18AA), 135
- Central Office/Direct Inward Dial Trunk Card (NTAG04AA), 129
- CE/PE Module Power Distribution Unit (NT8D56AC), 45
- CE/PE Power Supply DC (NT6D43), 42
- Chile
 - Generic Central Office Trunk Card (NTCK16), 134
- CLASS Modem Card (NT5D60AA), 72
- Clock Controller (QPC775), 62
- Clock Controller Card (QPC471), 61
- Clock Controller to Clock Controller Cable (NT8D75), 188
- Clock Controller to I/O Panel Cable (NT1R04), 174
- Clock Controller to Junctor Cable (NT8D74), 187
- CMLC Maintenance Cable (NPS90781-20L02), 173
- CMRC Maintenance Cable (NPS90781-20L01), 173
- CNI to 3PE Cable (NTND14), 203
- CNI to I/O Panel Cable (NTND94), 205
- Coaxial Interface Adapter Cable (NT7D68EA), 181
- CO/FX/WATS Trunk Card (NT9C14AA), 127
- CO/FX/WATS Trunk Card (QPC450), 143
- CO/FX/WATS Trunk Card (QPC527), 146
- CO/FX/WATS Trunk Card (QPC528), 147
- CO/FX/WATS Trunk Card with PPM (QPC525), 146
- CO/FX/WATS Trunk Card with PPM (QPC526), 146
- Column Spacer Kit (NT8D49), 34
- columns
 - top caps for, 36
- common equipment cards, 47
- COMPANION C1110 Base Station, 157
- COMPANION Meridian 1 Line Card (NTCK93), 72, 137, 138
- COMPANION Meridian 1 Radio Card (NTCK91), 137
- components and pedestals, 36
- Conduit Kit (NT7D0902), 221
- Conference/TDS Card (NT8D17), 56
- Conference/TDS to Music Trunk Cable (NT8D87), 193
- Connector Cable (QCA328AD), 207
- Connector Cable (QCAD110A), 208
- Connector Cable (QCAD115A), 208
- Connector Cable (QCAD116A), 208
- Connector Cable (QCAD117A), 209
- Connector Cable (QCAD118A), 209
- Connector Cable (QCAD119A), 209
- Connector Cable (QCAD120A), 209
- Connector Cable (QCAD121A), 209
- Connector Cable (QCAD122A), 209
- Connector Cable (QCAD123A), 210
- Connector Cable (QCAD124A), 210
- Connector Cable (QCAD125A), 210
- Connector Cable (QCAD126A), 211
- Connector Cable (QCAD128), 211
- Connector Cable (QCAD129A), 211
- Connector Cable (QCAD130A), 211
- Connector Cable (QCAD172A), 211
- Connector Cable (QCAD209A), 212
- Connector Cable (QCAD253A), 212
- Connector Cable (QCAD273A), 212
- Connector Cable (QCAD281), 213
- Connector Cable (QCAD282), 213
- Connector Cable (QCAD291), 213
- Connector Cable (QCAD320), 215
- Connector Cable (QCAD38A), 208
- Connector Cable (QCAD40A), 208
- Connector Cable (QCAD42A), 208
- Connector Cable (QCB12/13), 216
- Console Adjustable Stand, 159

Console Graphics Module/Busy Lamp Field, 160
 consoles, 140, 153
 Controller Card (NT8D01), 122
 Controller to I/O Cable (NT8D92AB), 194
 Controller-2 Card (NT8D01AD), 123
 Controller-4 Card (NT8D01AC), 122
 conversion package documentation, 26
 cooling equipment, 37
 Core Module Upgrade Kit (NTND33), 204
 Core Multi Drive Unit (NT5D20), 50
 Core to Network Interface Card (NT6D65), 52
 Core/Network Module (NT5D21), 30
 CP to CP Cable (NTND11), 200, 202
 CP to I/O Panel Ethernet Cable (NT7D90), 182
 CP to I/O Panel RS-232 Cable (NT7D89), 180
 CPU Cable (NT8D78), 189
 CPU Interface Cable (NT8D80), 189
 CPU to Network Cable (NT8D99), 196

D

Data Access Card (NT7D16), 121
 Data Cartridge (QMM42), 60
 Data Line Card (QPC311), 140
 Data Line Card (QPC341), 140
 DBX Ribbon Cable (NT5D50AA), 176
 DDI Trunk Card (NT5K17), 83
 DDI Trunk Card (NT5K17BA), 83
 DDI Trunk Card (NT5K84BA), 112
 Denmark
 Central Office Trunk Card (NT5K90AA), 114
 Central Office Trunk Card (NT5K90BA), 114
 E&M Tie Trunk Card (NT5K83BA), 102
 Flexible Analog Line Card (NT5K02JA), 76
 Flexible Analog Line Card (NT5K96JS), 117
 Tone Detector Card (NT5K48BA), 91
 Dial Tone Detector (QPC450), 147
 DID Tester
 NT5K92AA Direct Inward Dial Auto Answer
 Circuit, 115
 DID Trunk Card (NT5K84AA), 111
 DID Trunk Card (NT5K84HA), 113
 DID Trunk Card (QPC550), 147
 DID/DOD Trunk Card (NT5K36AA), 89

DID/DOD Trunk Card (NT5K36AB), 89
 Digital Line Card (NT8D02), 123
 Digital Trunk Interface Card (QPC915), 62
 Digitone Receiver (QPC574), 148
 Digitone Receiver (QPC595), 150
 Digitone Receiver Card (NT8D16), 127
 Digitone Receiver Daughterboard (QPC557), 149
 Digitone Receiver Daughterboard (QPC596), 150
 Direct Dial Inward Trunk Card (NT5K17), 83
 Direct Inward Dial Trunk Card (NTCK22AA), 136
 disk units, 58
 documentation and additional references, 23, 25, 28,
 29
 DTMF Receiver (NT5K09), 82
 Dual DTI/PRI (DDP) Card (NT5D12AA), 51
 Dual Loop Peripheral Buffer (NT5K10), 82
 Dual Loop Peripheral Buffer Card (QPC659), 151
 Dual SDI Cable (NTND37), 205

E

E&M Tie Trunk Card (NT5K19BA), 86
 E&M Tie Trunk Card (NT5K50AA), 92
 E&M Tie Trunk Card (NT5K72AA), 97
 E&M Tie Trunk Card (NT5K83AA), 101
 E&M Tie Trunk Card (NT5K83BA), 102
 E&M Tie Trunk Card (NT5K83CA), 103
 E&M Tie Trunk Card (NT5K83DA), 104
 E&M Tie Trunk Card (NT5K83EA), 106
 E&M Tie Trunk Card (NT5K83FA), 107
 E&M Tie Trunk Card (NT5K83GA), 108
 E&M Tie Trunk Card (NT5K83HA), 109
 E&M Trunk Card (NT8D15), 126
 E&M/DX/Paging Trunk Card (QPC71), 139
 E1 Local Maintenance Cable Assembly
 (NT7R67AA), 182
 E1 Remote Carrier/Alarm Cable Assembly
 (NT7D68EA), 181
 earthquake bracing kit, 224
 Egypt
 Generic Central Office Trunk Card (NTCK16),
 134
 electromagnetic interference (EMI), 28
 EMI, electromagnetic interference, 28

EMSI to MDU Data Cable (NT9D89), 197
EMSI to SMDU Data Cable (NT9D47), 196
EMSI to SMDU Power Cable (NT9D66), 197
Enhanced Existing Peripheral Equipment Module (NT5K11), 32
Enhanced Multi-frequency Receiver (NTAG26), 130
equipment
 availability, 27
 conversion and expansion packages, 26
 determining system requirements, 26
 packaging, 29
expansion package documentation, 26
Extender Tone Detector (NT5K20), 88
extension kits, 224
Extension Local Carrier Cable Assembly (NT7D69AA), 181
Extension Local Maintenance Cable Assembly (NT7D69BA), 181
External Alarm Cable (NT1P85AA), 174
External DCHI Cable (NTCK46), 201
External MSDL Cable (NTCK80), 202
Extraction Tool (P0741489), 223

F

faceplates, 224
Fan Unit (A0321130), 37
FDI to FDU Cable (NT8D77), 188
Fiber Remote Multi-IPE (A0634488), 221
Fiber Remote Multi-IPE (A0634489), 221
Fiber Remote Multi-IPE (A0634490), 221
Fiber Remote Multi-IPE (A0634491), 221
Fiber Remote Multi-IPE (A0634492), 221
Fiber Remote Multi-IPE (A0634493), 221
Fiber Remote Multi-IPE Maint. Cable (A0634497), 170
Fiber Remote Multi-IPE Rack Mount Shelf Option (A0634494), 221
Fibre Electro-optical Interface (NT1P63), 48
Fibre Optic Patchcord (NT1P64AA), 173
Fibre Optic Patchcord (NT1P75AA), 173
Fibre Peripheral Controller Card (NT1P62), 69

Fibre Peripheral Controller to I/O Panel Cable (NT1P78AA), 174
Fibre Superloop Network Card to I/O Panel Cable (NT1P76AA), 173
Field Wiring Kit (NT6D54), 179
Finland
 Central Office Trunk (NT5K70AB)Card, 94
 Central Office Trunk Card (NT5K70AA), 94
 E&M Tie Trunk Card (NT5K72AA), 97
Flexible Analog Line Card (NT5K02), 69
Flexible Analog Line Card (NT5K02AB), 74
Flexible Analog Line Card (NT5K02DA), 75
Flexible Analog Line Card (NT5K02JA), 76
Flexible Analog Line Card (NT5K02KA), 76
Flexible Analog Line Card (NT5K02LB), 77
Flexible Analog Line Card (NT5K02MA), 78
Flexible Analog Line Card (NT5K02NB), 78
Flexible Analog Line Card (NT5K02SA), 79
Flexible Central Office Trunk Card (NT5K18), 84
Flexible E&M Trunk Card (NT5K19), 86
Floppy Disk Interface Card (QPC742), 62
Floppy Disk Unit (NT8D68), 58
Four-Port Serial Data Interface Card (QPC841), 62
France

 Direct Inward Dial Auto Answer Circuit (NT5K92AA), 115
 E&M Tie Trunk Card (NT5K50AA), 92
 Flexible Analog Line Card (NT5K02DA), 75
Front/Rear Cover (NT8D55), 34

G

Generic Central Office Trunk Card (NTCK16), 133
Germany
 Central Office Trunk Card (NT5K70AA), 94
 Central Office Trunk Card (NT5K70AB), 94
 Central Office Trunk Card (NT5K71AA), 95
 Central Office Trunk Card (NT5K71AB), 96
 DID/DOD Trunk Card (NT5K36AA), 89
 DID/DOD Trunk Card (NT5K36AB), 89
 Direct Inward Dial Auto Answer Circuit (NT5K92AA), 115
 E&M Tie Trunk Card (NT5K72AA), 97
glossary

-
- acronyms, 225
 - mnemonics, 225
 - Ground Button Recall Line Card (QPC343), 140
 - Ground Button Recall Line Card (QPC532), 147
 - Ground Cable (QCAD310), 214
- H**
- Handset Assembly (Attendant), 159
 - harnesses, 43, 46, 180, 183
 - Holland
 - Central Office Trunk Card (NTAG03AA), 128
 - Central Office/Direct Inward Dial Trunk Card (NTAG04AA), 129
 - E&M Tie Trunk Card (NT5K83DA), 104
 - Flexible Analog Line Card (NT5K02KA), 76
 - Flexible Analog Line Card (NT5K96KA), 117
 - Hong Kong
 - Universal Trunk Card (NT5K07), 80
- I**
- IGS to InterGroup Module Cable (NT8D76), 188
 - Indonesia
 - Generic Central Office Trunk Card (NTCK16), 134
 - Integrated Services Digital Line Card (QPC578), 149
 - Intelligent Peripheral Equipment Module (NT8D37), 33
 - Interboard Faceplate Cable Harness (NPS50843-7L01), 172
 - Intercabinet Cable (NTND28), 204
 - Intercabinet Clock Reference Cable (NT1R05), 174, 175
 - Intercabinet Network Cable (NT8D73), 187
 - Intercabinet Network Cable (NT8D98), 196
 - Intercabinet Network Cable (QCAD312), 215
 - interface cables, 216
 - InterGroup Module (NT8D36), 33
 - Intracabinet network cable (NT5K1110), 179
 - Intracabinet Network Cable (NT9J96), 198
 - Intracabinet Network Cable (NT9J97), 198
 - Intracabinet Network Cable (NT9J98), 198
 - Intracabinet Network Cable (NT9J99), 199
 - Intracabinet Network Cable (QCAD311), 215
 - I/O Panel (P0715058), 223
 - I/O Processor/Core Multi Drive Unit (NT5D20), 50
 - IOP to IOP SCSI Cable (NTND13), 202
 - Ireland
 - Generic Central Office Trunk Card (NTCK16), 134
 - ISDN Network Termination Unit (NTBX80AA), 132
 - ISDN Signaling Processor (NT6D73), 54
 - Italy
 - Central Office Trunk Card (NTCK18AA), 135
 - Direct Inward Dial Trunk Card (NTCK22AA), 136
 - E&M Tie Trunk Card (NT5K83GA), 108
- K**
- Korea
 - Generic Central Office Trunk Card (NTCK16), 134
 - Kuwait
 - Generic Central Office Trunk Card (NTCK16), 134
- L**
- Lebanon
 - Generic Central Office Trunk Card (NTCK16), 134
 - Line side T1 Card (NT5D11AA), 69
 - Line side T1 Card (NT5D14AA), 70
 - Local Carrier Interface Card (NT7R51), 55
 - Local External Maintenance Cable Assembly (NT7R67DA), 180
 - Local Fiber Remote Multi-IPE Cable (A0634495), 169
 - Local Maintenance Cable Assembly (NT7R67AA), 180
 - Local Maintenance/Clock Cable Assembly (NT7R67CA), 183
 - Loop Signaling Trunk Card (QPC449), 143
 - Loop Signaling Trunk Card (QPC559), 148
 - Loop Signaling Trunk Card (QPC560), 148
-

M

M1000 series digital telephones, 158
M2006 Modular Telephone, 154
M2008 Modular Telephone, 154
M2016S Modular Telephone, 154
M2216ACD-1 Modular Telephone, 154
M2616 Modular Telephone, 154
M3000 Touchphone, 156
M7310 administration terminal, 158
Maintenance Extender Cable (NTAG81BA), 200
MCDS Asynchronous Card (QPC397), 141
MDF to EEPE cable (NT5K1104), 179
Memory/Peripheral Signaling Card (NT8D19), 57
Meridian 1 Trunk Tip/Ring Cable (NT5D16AA), 175
Meridian 1 Trunk Tip/Ring Cable (NT5D17AA), 175
Meridian Communications Adapter, 160
Meridian Integrated Conference Bridge (MICB) card (NT5D51), 70
Meridian Integrated RAN (NTAG36), 130
Meridian Modular Telephones, 154
Meridian Programmable Data Adapter, 160
Message Waiting (QPC267), 140
Message Waiting (QPC494), 144
Message Waiting Line Card (QPC558), 148
Message Waiting Line Card (QPC681), 151
Mexico
 Generic Central Office Trunk Card (NTCK16), 134
MFA150 Modular Power System, 39
MFC Sender/Receiver Card (QPC327), 140
mnemonics glossary, 225
Modem Pool Line Card (QPC353), 141
Modem Pool Line Card (QPC354), 141
Modular Power Plant (MPP600), 40
Modular Power System (MFA150), 39
Module to Module Power Harness (NT7D11), 180
Module to Module Power Harness (NT8D40AM), 183
modules
 creation from UEM (Universal Equipment Module), 29

 dimensions, 30

Module-to-module power harness (NT5K1109), 179
MPP600 Modular Power Plant, 40
MSDL DCHI Interface Cable (NTND26), 203
MSDL to I/O Panel Cable (NTND27AB), 203
Multipurpose ISDN Signaling Processor (NT6D73), 54
Multipurpose Serial Data Link Card (NT6D80), 55
Music Trunk Card (QPC650), 151
Music Trunk Card (QPC651), 151

N

NE-A18Q Connector Cable, 169, 170
NE-A25 Connector Cable, 171
NE-A25Q Connector Cable, 172
Network Card (QPC414), 60
Network Expansion Kit (NTND33CA), 204
Network Loop Connector Cable (QCAD293), 213
Network Module (NT8D35), 32
Network to Controller Cable (NT8D91), 194
Network to I/O Cable (NT8D86), 193
Network to I/O Cable (NT8D88), 193
Network to PE Cable (NT8D85), 192
Network/DTR Card (NT8D18), 57
New Zealand
 Central Office Trunk Card (NT5K18BA), 85
 DDI Trunk Card (NT5K17BA), 83
 E&M Tie Trunk Card (NT5K19BA), 86
 Flexible Analog Line Card (NT5K02LB), 77
Norway
 Central Office Trunk Card (NT5K93BA), 116
 E&M Tie Trunk Card (NT5K83CA), 103
 Flexible Analog Line Card (NT5K02MA), 78
 Flexible Analog Line Card (NT5K96MA), 117
 NT5K93AA Central Office Trunk Card, 115
 Tone Detector Card (NT5K48DA), 92
NPS50843-7L01 Interboard Faceplate Cable Harness, 172
NPS50843-7L02 Bypass Faceplate Cable Harness, 172
NPS90781-20L01 CMRC Maintenance Cable, 173
NPS90781-20L02 CMLC Maintenance Cable, 173

-
- NT0R71 Rectifier –48V/25A, 41
NT1 (NTBX80AA), 132
NT1 Card—Basic/Enhanced (NTBX84AA/BA), 132
NT1P62 Fibre Peripheral Controller Card, 69
NT1P63 Fibre Electro-optical Interface, 48
NT1P64AA Fibre Optic Patchcord, 173
NT1P75AA Fibre Optic Patchcord, 173
NT1P76AA Fibre Superloop Network Card to I/O Panel Cable, 173
NT1P78AA Fibre Peripheral Controller to I/O Panel Cable, 174
NT1P85AA External Alarm Cable, 174
NT1R04 Clock Controller to I/O Panel Cable, 174
NT1R05 Intercabinet Clock Reference Cable, 174, 175
NT1R20 OPS Analog Line Card, 69
NT2K91AA RS-232 Cable, 175
NT5D10 Call Processor Card, 49, 50
NT5D11AA Line side T1 Card, 69
NT5D12AA Dual DTI/PRI (DDP) Card, 51
NT5D14AA Line side T1 Card, 70
NT5D16AA Meridian 1 Trunk Tip/Ring Cable, 175
NT5D17AA Meridian 1 Trunk Tip/Ring Cable, 175
NT5D20 Core Multi Drive Unit, 50
NT5D20 I/O Processor/Core Multi Drive Unit (IOP/CMDU), 50
NT5D21 Core/Network Module, 30
NT5D50AA DBX Ribbon Cable, 176
NT5D51 Meridian Integrated Conference Bridge (MICB) card, 70
NT5D60AA XCMC CLASS Modem Card, 72
NT5D62 PCMCIA Hard Drive card, 222
NT5K02 Flexible Analog Line Card, 69
NT5K02AB Flexible Analog Line Card (Australia), 74
NT5K02DA Flexible Analog Line Card (France), 75
NT5K02JA Flexible Analog Line Card (Denmark), 76
NT5K02KA Flexible Analog Line Card (Holland), 76
NT5K02LB Flexible Analog Line Card (New Zealand), 77
NT5K02MA Flexible Analog Line Card (Norway), 78
NT5K02NB Flexible Analog Line Card (Sweden), 78
NT5K02SA Flexible Analog Line Card (Spain), 79
NT5K07 Universal Trunk Card (Hong Kong), 80
NT5K09 Quad DTMF Receiver, 82
NT5K10 Enhanced Dual Loop Peripheral Buffer, 82
NT5K11 Enhanced Existing Peripheral Equipment Module, 32
NT5K1104 MDF to EEPE cable, 179
NT5K1109 Module-to-module power harness, 179
NT5K1110 Intracabinet network cable, 179
NT5K17 Direct Dial Inward (DDI) Trunk Card (United Kingdom), 83
NT5K17BA DDI Trunk Card (New Zealand), 83
NT5K18 Flexible Central Office Trunk Card (United Kingdom), 84
NT5K18BA Central Office Trunk Card (New Zealand), 85
NT5K19 Flexible E&M Trunk Card (United Kingdom), 86
NT5K19BA E&M Tie Trunk Card (New Zealand), 86
NT5K20 Extender Tone Detector (UK), 88
NT5K21AA Extended Multifrequency Compelled Sender/Receiver (XMFC/XMFE), 88
NT5K36AA DID/DOD Trunk Card (Germany), 89
NT5K36AB DID/DOD Trunk Card (Austria/Germany), 89
NT5K48 Tone Detector Card (Global), 90
NT5K48BA Tone Detector Card (Denmark), 91
NT5K48DA Tone Detector Card (Norway), 92
NT5K50AA E&M Tie Trunk Card (France), 92
NT5K53AA Cable Assembly (UK), 176
NT5K54AA Cable Assembly (UK), 176
NT5K63AA Cable Assembly (UK), 177
NT5K64AA Cable Assembly (UK), 177
NT5K65AA Cable Assembly (UK), 177
NT5K66AA Cable Assembly (UK), 178
NT5K70AA Central Office Trunk Card (Finland/Germany), 94
-

NT5K70AB Central Office Trunk Card (Austria/Finland/Germany), 94	NT5K96JA Flexible Analog Line Card (Denmark), 117
NT5K71AA Central Office Trunk Card (Germany), 95	NT5K96KA Flexible Analog Line Card (Holland), 117
NT5K71AB Central Office Trunk Card (Austria/Germany), 96	NT5K96MA Flexible Analog Line Card (Norway), 117
NT5K72AA E&M Tie Trunk Card (Austria/Finland/Germany), 97	NT5K96NB Flexible Analog Line Card (Sweden), 117
NT5K79AA Cable Assembly (UK), 178	NT5K96SA Flexible Analog Line Card (Spain), 118
NT5K80AA Cable Assembly (UK), 178	NT5K99AA/BA Central Office Trunk Card (Spain), 118
NT5K81AA Cable Assembly (UK), 179	NT6D40 PE Power Supply DC, 41
NT5K82AA Central Office Trunk Card (Switzerland), 98	NT6D41 CE Power Supply DC, 41
NT5K82BA/CA Central Office Trunk Card (Australia), 99	NT6D42 Ringing Generator DC, 41
NT5K82HA Central Office Trunk Card (Belgium), 100	NT6D43 CE/PE Power Supply DC, 42
NT5K83AA E&M Tie Trunk Card (Spain/Switzerland), 101	NT6D54 Field Wiring Kit, 179
NT5K83BA E&M Tie Trunk Card (Denmark), 102	NT6D65 Core to Network Interface Card, 52
NT5K83CA E&M Tie Trunk Card (Norway), 103	NT6D70BA S/T Interface Line Card (SILC), 119
NT5K83DA E&M Tie Trunk Card (Holland), 104	NT6D71 U Interface Line Card (UILC), 120
NT5K83EA E&M Tie Trunk Card (Australia), 106	NT6D72 Basic Rate Concentrator Signaling Card, 121
NT5K83FA E&M Tie Trunk Card (Sweden), 107	NT6D73 Multipurpose ISDN Signaling Processor, 54
NT5K83GA E&M Tie Trunk Card (Italy), 108	NT6D73 U Interface Line Card, 121
NT5K83HA E&M Tie Trunk Card (Belgium), 109	NT6D80 Multipurpose Serial Data Link Card, 55
NT5K84AA Direct Inward Dial (DID) Trunk Card (Switzerland), 111	NT7D00AA top cap, 36
NT5K84BA Direct Dial Inward (DDI) Trunk Card (Australia), 112	NT7D00BA top cap, 36
NT5K84HA Direct Inward Dial (DID) Trunk Card (Belgium), 113	NT7D0902 Rear Mount Conduit Kit, 221, 222
NT5K90AA Central Office Trunk Card (Denmark), 114	NT7D09CA pedestal, 36
NT5K90BA Central Office Trunk Card (Denmark), 114	NT7D11 Module to Module Power Harness, 180
NT5K92AA Direct Inward Dial Auto Answer Circuit (DID Tester) (Austria/France/Germany/Switzerland), 115	NT7D16 Data Access Card, 121
NT5K93AA Central Office Trunk Card (Norway), 115	NT7D67CB Power Distribution Unit DC, 42
NT5K93BA Central Office Trunk Card (Norway), 116	NT7D68CA Remote Carrier/Alarm Cable Ass'y, 180
	NT7D68CA T1 Remote Carrier/Alarm Cable Assembly to Small Cabinet, 180
	NT7D68DA Remote Maint. Cable Ass'y, 181
	NT7D68DA T1 Remote Maintenance Cable Assembly to Small Cabinet, 181
	NT7D68EA Coaxial Interface Adapter Cable, 181
	NT7D68EA E1 Remote Carrier/Alarm Cable Assembly, 181

-
- NT7D69AA Extension Local Carrier Cable Assembly, 181
 - NT7D69BA Extension Local Maintenance Cable Assembly, 181
 - NT7D89 CP to I/O Panel RS-232 Cable, 180
 - NT7D90 CP to I/O Panel Ethernet Cable, 182
 - NT7R51 Local Carrier Interface Card, 55
 - NT7R52 Remote Carrier Interface Card, 121
 - NT7R62AA Bracket-Small Cabinet I/O Ass'y, 222
 - NT7R67AA Local Maintenance Cable Assembly, 180
 - NT7R67BA T1 Local Carrier/Monitor Cable Assembly, 182
 - NT7R67CA Local Maintenance/Clock Cable Assembly, 183
 - NT7R67DA Local External Maintenance Cable Assembly, 180
 - NT7R67EA E1 Local Maintenance Cable Assembly, 182
 - NT7R68AA T1 Remote Carrier/Alarm Cable Assembly, 180
 - NT7R68BA Remote Maintenance Cable Assembly, 180
 - NT8B80AB-03 Remote Access Device, 223
 - NT8D01 Controller Card, 122
 - NT8D01AC Controller-4 Card, 122
 - NT8D01AD Controller-2 Card, 123
 - NT8D02 Digital Line Card, 123
 - NT8D03 Analog Line Card, 124
 - NT8D04 Superloop Network Card, 56
 - NT8D06 PE Power Supply AC, 42
 - NT8D09 Analog Message Waiting Line Card, 124
 - NT8D14 Universal Trunk Card, 125
 - NT8D15 E&M Trunk Card, 126
 - NT8D16 Digitone Receiver Card, 127
 - NT8D17 Conference/TDS Card, 56
 - NT8D18 Network/DTR Card, 57
 - NT8D19 Memory/Peripheral Signaling Card, 57
 - NT8D21 Ringing Generator AC, 42
 - NT8D22 System Monitor, 43
 - NT8D27BB pedestal, 36
 - NT8D29 CE Power Supply AC, 43
 - NT8D35 Network Module, 32
 - NT8D36 InterGroup Module, 33
 - NT8D37 Intelligent Peripheral Equipment Module, 33
 - NT8D39AA Power Failure Transfer Unit, 43
 - NT8D40AA AC Power Cord, 181
 - NT8D40AM Module to Module Power Harness, 183
 - NT8D40AY AC Power Cord, 183
 - NT8D40BJ System Monitor to Backplane Cable, 183
 - NT8D40BK System Monitor Trip Cable, 183
 - NT8D41BA Quad Density Serial Data Interface, 57
 - NT8D46AA System Monitor Column Cable, 183
 - NT8D46AC Thermostat Harness, 43, 183
 - NT8D46AD System Monitor to SDI Cable, 184
 - NT8D46AG System Monitor to SDI Paddleboard Cable, 184
 - NT8D46AH System Monitor to MDF Cable, 184
 - NT8D46AJ System Monitor to UPS (Best) Cable, 184
 - NT8D46AL System Monitor Serial Link Cable, 184
 - NT8D46AM Air Probe Harness AC, 44, 184
 - NT8D46AP System Monitor Serial Link Cable, 185
 - NT8D46AQ System Monitor to UPS (Exide) Cable, 185
 - NT8D46AS System Monitor Inter-CPU Cable, 185
 - NT8D46AT System Monitor to QBL15 Cable, 185
 - NT8D46AU System Monitor to UPS (Alpha) Cable, 185
 - NT8D46AV System Monitor to Power Cabinet Cable, 186
 - NT8D46AW System Monitor to QBL12 Cable, 186
 - NT8D46BH System Monitor to MDF Cable, 186
 - NT8D46BV System Monitor to Power Cabinet Cable, 186
 - NT8D46CC System Monitor to SDI Paddleboard Cable, 186
 - NT8D46CV System Monitor to Power Cabinet Cable, 186
 - NT8D46DC Air Probe Harness DC, 44, 187
 - NT8D47 Remote Peripheral Equipment Module, 34
 - NT8D49 Column Spacer Kit, 34
 - NT8D52AB Pedestal Blower Unit AC, 44
-

- NT8D52DD Pedestal Blower Unit DC, 44
- NT8D53AB Power Distribution Unit AC, 45
- NT8D53AD Power Distribution Unit, 45
- NT8D55 Front/Rear Cover, 34
- NT8D56AA CE Module Power Distribution Unit, 45
- NT8D56AC CE/PE Module Power Distribution Unit, 45
- NT8D57AA PE Module Power Distribution Unit, 46
- NT8D62AA Thermal Sensor Harness, 46
- NT8D63 Overhead Cable Tray Kit, 223
- NT8D68 Floppy Disk Unit, 58
- NT8D72 Primary Rate Interface 2 Mbps, 58
- NT8D73 Intercabinet Network Cable, 187
- NT8D74 Clock Controller to Junctor Cable, 187
- NT8D75 Clock Controller to Clock Controller Cable, 188
- NT8D76 IGS to InterGroup Module Cable, 188
- NT8D77 FDI to FDU Cable, 188
- NT8D78 CPU Cable, 189
- NT8D79 PRI/DTI to Clock Controller Cable, 189
- NT8D80 CPU Interface Cable, 189
- NT8D81 Tip and Ring Cable, 190
- NT8D82 SDI to I/O Cable, 191
- NT8D83 PRI/DTI to I/O Cable, 191
- NT8D84AA SDI Paddleboard to I/O Cable, 191
- NT8D84BA System Monitor to I/O Cable, 191
- NT8D85 Network to PE Cable, 192
- NT8D86 Network to I/O Cable, 193
- NT8D87 Conference/TDS to Music Trunk Cable, 193
- NT8D88 Network to I/O Cable, 193
- NT8D90AF SDI Multiple-Port Cable, 193
- NT8D91 Network to Controller Cable, 194
- NT8D92AB Controller to I/O Cable, 194
- NT8D93 SDI Paddleboard I/O to DTE/DCE Cable, 194
- NT8D95 SDI I/O to DTE/DCE Cable, 195
- NT8D96AB SDI Multiport Cable, 195
- NT8D97AX PRI/DTI I/O to MDF Cable, 195
- NT8D98 Intercabinet Network Cable, 196
- NT8D99 CPU to Network Cable, 196
- NT9C14AA CO/FX/WATS Trunk Card, 127
- NT9D19 Call Processor Card, 58
- NT9D47 EMSI to SMDU Data Cable, 196
- NT9D66 EMSI to SMDU Power Cable, 197
- NT9D89 EMSI to MDU Data Cable, 197
- NT9J93AD PRI/DTI Echo Canceler to I/O Cable, 197
- NT9J94AB RPE to I/O Cable, 197
- NT9J96 Intracabinet Network Cable, 198
- NT9J97 Intracabinet Network Cable, 198
- NT9J98 Intracabinet Network Cable, 198
- NT9J99 Intracabinet Network Cable, 199
- NTAG01AA Cable Assembly (UK), 199
- NTAG02AA Cable Assembly (UK), 199
- NTAG03AA Central Office Trunk Card (Holland), 128
- NTAG04AA Central Office/Direct Inward Dial Trunk Card (Holland), 129
- NTAG26 Enhanced Multi-frequency Receiver, 130
- NTAG36 Meridian Integrated RAN (MIRAN), 130
- NTAG81AA Audio Cable, 199
- NTAG81BA Maintenance Extender Cable, 200
- NTAK1204 Carrier Remote Inter-cabinet Cable, 200
- NTAK410 Carrier Remote DC Power Cable, 200
- NTBX80AA ISDN Network Termination Unit (NT1), 132
- NTBX84AA/BA Rack-mount NT1 Card—Basic/Enhanced, 132
- NTCG03 Reference Clock Cable, 201
- NTCK16 Generic Central Office Trunk Card, 133
- NTCK18AA Central Office Trunk Card (Italy), 135
- NTCK22AA Direct Inward Dial Trunk Card (Italy), 136
- NTCK46 External DCHI Cable, 201
- NTCK80 External MSDL Cable, 202
- NTCK91 COMPANION Meridian 1 Radio Card, 137
- NTCK93 COMPANION Meridian 1 Line Card, 72, 137, 138
- NTND11 CP to CP Cable, 200, 202
- NTND13 IOP to IOP SCSI Cable, 202
- NTND14 CNI to 3PE Cable, 203

- NTND26 MS DL DCHI Interface Cable, 203
 NTND27AB MS DL to I/O Panel Cable, 203
 NTND28 Intercabinet Cable, 204
 NTND33 Core Module Upgrade Kit, 204
 NTND33CA Network Expansion Kit, 204
 NTND37 Dual SDI Cable, 205
 NTND94 CNI to I/O Panel Cable, 205
 NTND95 3PE to Connector Housing Cable, 205
 NTOR72 Rectifier –48V/25A, 41
 Nullmodem
 A0601396, 220
 A0601397, 220
- O**
- OPS Analog Interface Line Card (NT1R20), 69
 OPS Analog Line Card (NT1R20), 69
 Overhead Cable Tray Kit (NT8D63), 223
 overlay template
 attendant administration, 159
- P**
- P0704007 Superloop Adapter Plate, 207, 223
 P0715058 Universal I/O Panel, 207, 223
 P0741489 Extraction Tool, 223
 P10 Cable (QCAD294), 213
 Parallel Message Waiting Line Card (QPC681), 151
 PCMCIA Flash Card, 3MB (A0660403), 222
 PCMCIA Flash Card, 40MB (A0633651), 221
 PCMCIA Hard Drive card (NT5D62), 222
 PE Cable Assembly (QCAD308), 214
 PE Cable Assembly (QCAD313), 215
 PE Module Power Distribution Unit (NT8D57AA),
 46
 PE Power Supply AC (NT8D06), 42
 PE Power Supply DC (NT6D40), 41
 Pedestal Blower Unit AC (NT8D52AB), 44
 Pedestal Blower Unit DC (NT8D52DD), 44
 pedestals and components, 36
 peripheral equipment cards, 63
 Peripheral Signaling Card (QPC43), 60
 Personal Computer Interface Card (QPC512), 145
 Power Adapter Cable (QCAD306), 214
 Power Adapter Cable (QCAD321), 215
 Power Connector Cable (QCAD274A), 212
 Power Connector Cable (QCAD275A), 212
 Power Connector Cable (QCAD276), 212
 Power Connector Cable (QCAD277), 212
 Power Connector Cable (QCAD278), 212
 Power Connector Cable (QCAD279), 212
 Power Connector Cable (QCAD283), 213
 Power Connector Cable (QCAD287), 213
 Power Distribution Box (QBL14), 46
 Power Distribution Box (QBL15), 46
 Power Distribution Box (QBL21), 46
 Power Distribution Unit (NT8D53AD), 45
 Power Distribution Unit (NT8D56AA), 45
 Power Distribution Unit (NT8D56AC), 45
 Power Distribution Unit (NT8D57AA), 46
 Power Distribution Unit AC (NT8D53AB), 45
 Power Distribution Unit DC (NT7D67CB), 42
 power equipment, 37
 Power Failure Transfer Unit (A0355200), 39
 Power Failure Transfer Unit (NT8D39AA), 43
 Power Supply –48V (A0367916), 39
 Power Supply AC (NT8D06), 42
 Power Supply AC (NT8D29), 43
 Power Supply DC (NT6D40), 41
 Power Supply DC (NT6D41), 41
 Power Supply DC (NT6D43), 42
 PRI to DCHI Cable (QCAD328), 216
 PRI/DTI Echo Canceler to I/O Cable (NT9J93AD),
 197
 PRI/DTI I/O to MDF Cable (NT8D97AX), 195
 PRI/DTI I/O to MDF Cable (QCAD133), 211
 PRI/DTI to Clock Controller Cable (NT8D79), 189
 PRI/DTI to I/O Cable (NT8D83), 191
 Primary Rate Interface 2 Mbps (NT8D72), 58
 Primary Rate Interface Card (QPC720), 61
 Pulsed E&M Trunk Card (QPC390), 141
 Pulsed E&M Trunk Card (QPC391), 141
- Q**
- QBL12 Battery Distribution Box, 46
 QBL14 Power Distribution Box, 46
 QBL15 Power Distribution Box, 46
 QBL21 Power Distribution Box, 46
 QCA328AD Connector Cable, 207

QCA55 CE Cabinet, 36
QCAD36A Terminal Connector Cable, 207
QCAD37A Terminal Connector Cable, 207
QCAD38A Connector Cable, 208
QCAD42A Connector Cable, 208
QCAD110A Connector Cable, 208
QCAD115A Connector Cable, 208
QCAD116A Connector Cable, 208
QCAD117A Connector Cable, 209
QCAD118A Connector Cable, 209
QCAD119A Connector Cable, 209
QCAD120A Connector Cable, 209
QCAD121A Connector Cable, 209
QCAD122A Connector Cable, 209
QCAD123A Connector Cable, 210
QCAD124A Connector Cable, 210
QCAD125A Connector Cable, 210
QCAD126A Connector Cable, 211
QCAD128 Connector Cable, 211
QCAD129A Connector Cable, 211
QCAD130A Connector Cable, 211
QCAD133 PRI/DTI I/O to MDF Cable, 211
QCAD172A Connector Cable, 211
QCAD209A Connector Cable, 212
QCAD253A Connector Cable, 212
QCAD273A Connector Cable, 212
QCAD274A AC Power Cord, 212
QCAD274A Power Connector Cable, 212
QCAD275A Power Connector Cable, 212
QCAD276 Power Connector Cable, 212
QCAD277 Power Connector Cable, 212
QCAD278 Power Connector Cable, 212
QCAD279 Power Connector Cable, 212
QCAD281 Connector Cable, 213
QCAD282 Connector Cable, 213
QCAD283 Power Connector Cable, 213
QCAD287 Power Connector Cable, 213
QCAD291 Connector Cable, 213
QCAD293 Network Loop Connector Cable, 213
QCAD294 P10 Cable, 213
QCAD299 RPE Power Adapter Cable, 214
QCAD300 RPE Power Adapter Cable, 214
QCAD306 Power Adapter Cable, 214
QCAD308 PE Cable Assembly, 214
QCAD309 Alarm Adapter Cable, 214
QCAD310 Ground Cable, 214
QCAD311 Intracabinet Network Cable, 215
QCAD312 Intercabinet Network Cable, 215
QCAD313 PE Cable Assembly, 215
QCAD320 Connector Cable, 215
QCAD321 Power Adapter Cable, 215
QCAD328 PRI to DCHI Cable, 216
QCAD332/333 3-Port SDI Cables, 216
QCAD40A Connector Cable, 208
QCB12/13 Connector Cable, 216
QCB6 Tape Unit Connector Cable, 216
QMM42 Security Data Cartridge, 60
QMT11 Asynchronous/Synchronous Interface Module, 158
QMT12 Add-on Data Module, 158
QPC43 Peripheral Signaling Card, 60
QPC45 Serial Data Interface, 60
QPC60 500/2500 Line Card, 139
QPC71 E&M/DX/Paging Trunk Card, 139
QPC250 Release Link Trunk Card, 139
QPC267 500/2500 Line Card (Message Waiting), 140
QPC267 500/2500 Message Waiting Line Card, 140
QPC297 Attendant Console Monitor Card, 140
QPC311 Data Line Card, 140
QPC327 MFC Sender/Receiver Card, 140
QPC341 Data Line Card, 140
QPC342 Attendant Console Monitor Card, 140
QPC343 Ground Button Recall Line Card, 140
QPC343 Modem Pool Line Card, 141
QPC353 Modem Pool Line Card, 141
QPC390 Pulsed E&M Trunk Card, 141
QPC391 Pulsed E&M Trunk Card, 141
QPC397 MCDS Asynchronous Card, 141
QPC414 Network Card, 60
QPC422 Tone Detector Card, 141
QPC430 Asynchronous Interface Line Card, 142
QPC432 4-Port Data Line Card, 142
QPC441 Three-Port Extender Card, 60
QPC449 Loop Signaling Trunk Card, 143
QPC450 CO/FX/WATS Trunk Card, 143

QPC451 SL-1 Set Line Card, 144
 QPC452 Basic 500/2500 Line Card, 144
 QPC471 Clock Controller Card, 61
 QPC494 500/2500 Line Card (Message Waiting),
 144
 QPC494 500/2500 Message Waiting Line Card, 144
 QPC512 Personal Computer Interface Card, 145
 QPC520 SL-1 Line Card, 145
 QPC521 500/2500 Line Card, 146
 QPC525 CO/FX/WATS Trunk Card with PPM, 146
 QPC526 CO/FX/WATS Trunk Card with PPM, 146
 QPC527 CO/FX/WATS Trunk Card, 146
 QPC528 CO/FX/WATS Trunk Card, 147
 QPC532 Ground Button Recall Line Card, 147
 QPC540 Dial Tone Detector, 147
 QPC550 DID Trunk Card, 147
 QPC551 Radio Paging Trunk Card, 148
 QPC558 Message Waiting Line Card, 148
 QPC559 Loop Signaling Trunk Card, 148
 QPC560 Loop Signaling Trunk Card, 148
 QPC574 Digitone Receiver, 148
 QPC577 Digitone Receiver Daughterboard
 (μ -Law), 149
 QPC578 Integrated Services Digital Line Card, 149
 QPC594 500/2500 Line Card, 149
 QPC595 Digitone Receiver, 150
 QPC596 Digitone Receiver Daughterboard
 (A-Law), 150
 QPC650 Music Trunk Card (μ -Law), 151
 QPC651 Music Trunk Card (A-Law), 151
 QPC659 Dual Loop Peripheral Buffer Card, 151
 QPC681 Parallel Message Waiting Line Card, 151
 QPC720 Primary Rate Interface Card, 61
 QPC742 Floppy Disk Interface Card, 62
 QPC775 Clock Controller, 62
 QPC782 Read-Only Memory, 62
 QPC841 Four-Port Serial Data Interface Card, 62
 QPC915 Digital Trunk Interface Card, 62
 Quad Density Serial Data Interface (NT8D41BA),
 57
 Quad DTMF Receiver (NT5K09), 82

R

Rack-mount NT1 Card—Basic/Enhanced
 (NTBX84AA/BA), 132
 Radio Paging Trunk Card (QPC551), 148
 Read-Only Memory (QPC782), 62
 Rear Mount Conduit Kit (NT7D0902), 221, 222
 Rectifier
 –48V/25A (NT0R71), 41
 –48V/25A (NT0R72), 41
 Reference Clock Cable (NTCG03), 201
 references
 additional documentation, 23, 25, 28, 29
 Release Link Trunk Card (QPC250), 139
 Remote Access Device (NT8B80AB-03), 223
 Remote Carrier Interface Card (NT7R52), 121
 Remote Carrier/Alarm Cable Ass’y (NT7D68CA),
 180
 Remote Fiber Remote Multi-IPE Cable
 (A0634496), 170
 Remote Maint. Cable Ass’y (NT7D68DA), 181
 Remote Maintenance Cable Assembly
 (NT7R68BA), 180
 Remote Peripheral Equipment Module (NT8D47),
 34
 Ringing Generator AC (NT8D21), 42
 Ringing Generator DC (NT6D42), 41
 ROM Card (QPC782), 62
 RPE Power Adapter Cable (QCAD299), 214
 RPE Power Adapter Cable (QCAD300), 214
 RPE to I/O Cable (NT9J94AB), 197
 RS-232 Cable (NT2K91AA), 175

S

SDI Cables (QCAD332/333), 216
 SDI I/O to DTE/DCE Cable (NT8D95), 195
 SDI Multiple-Port Cable (NT8D90AF), 193
 SDI Multiport Cable (NT8D96AB), 195
 SDI Paddleboard I/O to DTE/DCE Cable
 (NT8D93), 194
 SDI Paddleboard to I/O Cable (NT8D84AA), 191
 SDI to I/O Cable (NT8D82), 191
 Security Data Cartridge (QMM42), 60
 seismic bracing kit, 224

Serial Data Interface (QPC45), 60
Serial Data Interface Card (QPC841), 62
Serial Data Link Card (NT6D80), 55
Shaye Handset (C3020), 156
shelves, 29
SILC
 S/T Interface Line Card (NT6D70BA), 119
Singapore
 Generic Central Office Trunk Card (NTCK16),
 134
SL-1 Line Card (QPC520), 145
SL-1 Set Line Card (QPC451), 144
Spain
 Central Office Trunk Card (NT5K99AA/BA),
 118
 E&M Tie Trunk Card (NT5K83AA), 101
 Flexible Analog Line Card (NT5K02SA), 79
 Flexible Analog Line Card (NT5K96SA), 118
S/T Interface Line Card (NT6D70BA), 119
station equipment, 153
Superloop Adapter Plate (P0704007), 207, 223
Superloop Network Card (NT8D04), 56
Sweden
 E&M Tie Trunk Card (NT5K83FA), 107
 Flexible Analog Line Card (NT5K02NB), 78
 Flexible Analog Line Card (NT5K96NB), 117
Switzerland
 Central Office Trunk Card (NT5K71AB), 98
 Direct Inward Dial (DID) Trunk Card
 (NT5K84AA), 111
 Direct Inward Dial Auto Answer Circuit
 (NT5K92AA), 115
 E&M Tie Trunk Card (NT5K83AA), 101
system cabinets and shelves, 29
System Monitor (NT8D22), 43
System Monitor Column Cable (NT8D46AA), 183
System Monitor Inter-CPU Cable (NT8D46AS),
 185
System Monitor Serial Link Cable (NT8D46AL),
 184
System Monitor Serial Link Cable (NT8D46AP),
 185

System Monitor to Backplane Cable (NT8D40BJ),
 183
System Monitor to I/O Cable (NT8D84BA), 191
System Monitor to MDF Cable (NT8D46AH), 184
System Monitor to MDF Cable (NT8D46BH), 186
System Monitor to Power Cabinet Cable
 (NT8D46AV), 186
System Monitor to Power Cabinet Cable
 (NT8D46BV), 186
System Monitor to Power Cabinet Cable
 (NT8D46CV), 186
System Monitor to QBL12 Cable (NT8D46AW),
 186
System Monitor to QBL15 Cable (NT8D46AT),
 185
System Monitor to SDI Cable (NT8D46AD), 184
System Monitor to SDI Paddleboard Cable
 (NT8D46AG), 184
System Monitor to SDI Paddleboard Cable
 (NT8D46CC), 186
System Monitor to UPS (Alpha) Cable
 (NT8D46AU), 185
System Monitor to UPS (Best) Cable (NT8D46AJ),
 184
System Monitor to UPS (Exide) Cable
 (NT8D46AQ), 185
System Monitor Trip Cable (NT8D40BK), 183

T

T1 Local Carrier/Monitor Cable Assembly
 (NT7R67BA), 182
T1 Remote Carrier/Alarm Cable Assembly
 (NT7R68AA), 180
T1 Remote Carrier/Alarm Cable Assembly to Small
 Cabinet (NT7D68CA), 180
T1 Remote Maintenance Cable Assembly to Small
 Cabinet (NT7D68DA), 181
Taiwan
 Generic Central Office Trunk Card (NTCK16),
 134
Tape Unit Connector Cable (QCB6), 216
telephones, 153
 M1000 series digital, 158

M3000 Touchphone, 156
 Meridian Modular, 154
 Terminal Connector Cable (QCAD36A), 207
 Terminal Connector Cable (QCAD37A), 207
 Thailand
 Generic Central Office Trunk Card (NTCK16),
 134
 Thermal Sensor Harness (NT8D62AA), 46
 Thermostat Harness (NT8D46AC), 43, 183
 Three-Port Extender Card (QPC441), 60
 Tip and Ring Cable (NT8D81), 190
 Tone Detector Card (NT5K48), 90
 Tone Detector Card (NT5K48BA), 91
 Tone Detector Card (NT5K48DA), 92
 Tone Detector Card (QPC422), 141
 top caps for columns, 36
 Tortola
 Generic Central Office Trunk Card (NTCK16),
 134
 Touchphone (M3000), 156
 Trunk Card (QPC71), 139
 Turkey
 Generic Central Office Trunk Card (NTCK16),
 134

U

U Interface Line Card (NT6D71), 120
 U Interface Line Card (NT6D73), 121
 UDS FastTalk v.32/42b (A0381391), 220
 UEM (Universal Equipment Module), 29
 side panels for, 36
 UILC
 U Interface Line Card (NT6D71), 120
 United Kingdom
 Cable Assembly (NT5K53AA0), 176
 Cable Assembly (NT5K54AA), 176
 Cable Assembly (NT5K63AA), 177
 Cable Assembly (NT5K64AA), 177
 Cable Assembly (NT5K65AA), 177
 Cable Assembly (NT5K66AA), 178
 Cable Assembly (NT5K79AA), 178
 Cable Assembly (NT5K80AA), 178
 Cable Assembly (NT5K81AA), 179

Cable Assembly (NTAG01AA), 199
 Cable Assembly (NTAG02AA), 199
 Direct Dial Inward (DDI) Trunk Card
 (NT5K17), 83
 Extender Tone Detector (NT5K20), 88
 Flexible Central Office Trunk Card (NT5K18),
 84
 Flexible E&M Trunk Card (NT5K19), 86
 Universal I/O Panel (P0715058), 207, 223
 Universal Trunk Card (NT5K07), 80
 Universal Trunk Card (NT8D14), 125

V

Venezuela
 Generic Central Office Trunk Card (NTCK16),
 134

X

X11 software
 related documentation, 24, 28
 XMFC/XMFE
 NT5K21AA Extended Multifrequency
 Compelled Sender/Receiver, 88

Meridian 1

Equipment identification

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