

# Digital Switch Products

## Key features

- Integration with voice response units
- Broad range of network interfaces
- Telecommunications server
- Switching functions
- Platform for additional applications
- Call routing
- Screening/prioritizing based on automatic number identification (ANI)
- Call origination and retry
- Single number access to multiple services

## Distributed switches: building blocks for new network service revenues

Tandem now offers switch products from Excel, Inc. and Summa Four, Inc., which are part of a complete offering of Tandem telephony products that also includes voice response unit (VRU) platforms and high performance, fault-tolerant UNIX<sup>®</sup> and NonStop Kernel systems.

Summa Four and Excel are leading suppliers of host-controlled digital switching systems, which are the foundation for developing and deploying computer telephony services.

Intelligent digital switches allow distributed switching for a wide variety of telecommunications companies, Postal Telephone and Telegraph (PTT) agencies, Regional Bell Operating Companies (RBOCs), and cellular providers.

When used within the public switching network, a digital switching system can be used as a network platform for developing and deploying new enhanced services, as an adjunct to existing central office (CO) switches to provide additional capabilities, and as a bridge between diverse network environments.

For call centers and service bureaus, a digital switching system serves as a network interface that allows you to quickly implement new applications.

As a network concentrator, a digital switching system dramatically improves trunk utilization and helps enhance your investment in computer equipment and peripheral devices.

Summa Four and Excel switching systems are founded on the principle of open architecture, delivering the power and flexibility of an open, programmable telecommunications system.

## Total telecommunications solution

Summa Four and Excel systems are complete solutions to your switching and network interface needs. You can use them as multi-application platforms for integrating a full array of voice, fax, video and other services.

Summa Four and Excel digital switching systems can be directly controlled by a variety of host computers, from PCs to mainframes. You can control every element of the call and dynamically coordinate the delivery of call and database information. You choose the operating system and host computer that best suits your application.

## Benefits

- *Superior reliability and fault tolerance.* Summa Four and Excel systems are field-proven and provide the reliability and fault tolerance demanded by today's telecommunications applications. Advanced diagnostic capabilities and fully redundant architecture assure maximum reliability. Each network access or service circuit card carries all the intelligence needed to perform its function so that a single-point failure does not bring the system down. Summa Four and Excel switching systems can continue to operate while service circuit or network access cards are being replaced.
- *Call control.* A host-controlled digital switch puts the application control in the hands of the service provider. Service providers can add to or modify the service. Enhancements are not tied to the software release associated with a PBX-based or ACD-based solution.
- *Switching.* Summa Four and Excel Series systems feature robust, non-blocking switching matrixes and distributed network subsystems with industry-standard hardware and software. Summa Four s VCO and SDS Series systems allow economical modular growth from 8 to 1,776 ports. Excel s LNX 2000 system provides from 96 to 2,048 ports.
- *Wide range of network interfaces.* Network interfaces include analog and digital interfaces for public networks, such as E&M, T1, ISDN Primary Rate Interface (PRI). The VCO and SDS Series from Summa Four and the LNX 2000 from Excel can interface with virtually any network environment and provide a bridge between mature and evolving technologies.
- *Internal service circuits.* Innovative service circuits in Summa Four and Excel systems give you the features and flexibility you need for application-specific call handling, such as tone detection and generation, call progress analysis, conferencing, and voice prompting. Summa Four systems can also handle speaker-independent speech recognition.
- *Cost effective.* A switching front-end reduces the number of lines and trunks through concentration. This increases efficiency by increasing the percentage of trunk utilization.

- *Incremental investment for additional services.*

You can add applications and services to the platform incrementally, avoiding a total re-investment in a new, dedicated system.

## Software architecture

Summa Four and Excel applications use two integrated software architectures:

- Generic call control software, which resides on the SDS, the VCO, or the LNX 2000 system
- Application software, which resides on the host computer

## Ordering Information

### Summa Four VCO/80 switch products

*Many Summa Four components are common to VCO/80 and SDS systems.*

#### Assemblies for system configuration

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##### System control and common equipment

###### Basic system VCO/80 DC

Non-blocking PCM digital switch supporting up to 4,000 network access and service ports. Includes system cabinet, modular power subsystem, fan unit, VME power module, control subrack, storage subsystem with a 1.44 MB floppy drive and a 40 MB hard drive, master port subrack, and M/E power module.  
VRSU3000

###### Basic system VCO/80 AC

Non-blocking PCM digital switch supporting up to 4,000 network access and service ports. Includes system cabinet, modular power subsystem, fan unit, VME power module, control subrack, storage subsystem with a 1.44 MB floppy drive and a 40 MB hard drive, master port subrack, and M/E power module.  
VRSU3001

###### VCO documentation set

One set of documentation for the Summa Four switch.  
VRSU3002

###### Control/storage/power redundancy DC

Provides redundant subsystems for critical parts of the Summa Four switch.  
VRSU3003

###### Control/storage/power redundancy AC

Provides redundant subsystems for critical parts of the Summa Four switch.  
VRSU3004

###### Enclosed cable rack support 7 ft

VRSU3005

###### Enclosed cable rack support 8 ft

VRSU3006

###### Dual DC Power Feed Termination

VRSU3420

##### Country package and support\*

Country package and support USA/Canada

VRSU3051

For the UK

VRSU3052

For New Zealand

VRSU3053

For China (PRC)

VRSU3054

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\* For countries other than the USA and Canada, check with Tandem for availability.

For Chile  
VRSU3055

For Colombia  
VRSU3056

For Japan  
VRSU3057

E1 card, CAS 31B\*  
VRSU3115

E1 card, CAS R2\*  
VRSU3116

For Finland  
VRSU3058

For Netherlands  
VRSU3059

For Hong Kong  
VRSU3060

E1 card, CAS ALS700\*  
VRSU3117

For Brazil  
VRSU3061

For Belgium  
VRSU3062

For Spain  
VRSU3063

Quad programmable E1 card\*  
Provides connection for four E1 telephony lines.  
VRSU3118

For France  
VRSU3064

E1 universal ISDN card\*  
VRSU3119

### **Integrated SS7 interface**

Integrated SS7 basic 2 links  
VRSU3081

Integrated SS7 redundancy 2 links  
VRSU3082

Integrated SS7 basic 4 links  
VRSU3083

Integrated SS7 redundancy 4 links  
VRSU3084

### **Port interface cards**

#### **Subscriber line interface card (SLIC-2)**

Supports eight 2-wire, direct connections, each with a dedicated DTMF receiver. Also supports dry loop, dial-up connections from a CO.  
VRSU3101

#### **Direct Inward Dial card (DID-2)**

Supports eight 2-wire, Direct Inward Dial connections each with a dedicated DTMF receiver. Supports dial pulse detection, delay dial or wink start trunks, and battery reversal answer supervision.  
VRSU3102

#### **Universal trunk card (UTC-2)**

Supports eight 2-wire, originating and terminating trunk connections; CO must supply office battery.  
VRSU3103

#### **2-wire E&M trunk card**

Supports eight E&M trunk connections with hookflash generation and wink detect/generation. Supports 2-wire connections.  
VRSU3104

#### **4-wire E&M trunk card**

Supports eight E&M trunk connections with hookflash generation and wink detect/generation. Supports 4-wire connections  
VRSU3105

#### **T1 single span**

Provides a D3/D4 bipolar format, 24-channel, 1.544 Mbps PCM data stream to DS1 carrier specifications. Each T1 I/F card can have up to 24 non-blocking ports assigned to incoming, outgoing and/or 2-way service on a port-by-port basis. Supports hookflash generation and wink detect/generation.  
VRSU3106

#### **Quad programmable T1 card**

Provides connection for four T1 telephony lines.  
VRSU3107

#### **ISDN primary rate card NFAS capable**

Provides a D3/D4 bipolar or ESF format, 24-channel 1.544 Mbps digital data stream.  
VRSU3108

#### **Complex impedance single line interface (CI-SLIC)**

VRSU3109

#### **Complex impedance Direct Dial Inward card (DDI)**

VRSU3110

ECT/LCT card  
VRSU3111

2-wire E&M (DC5) trunk card  
VRSU3112

4-wire E&M (DC5) trunk card  
VRSU3113

E1 card, CAS - MCL\*  
VRSU3114

### **Service circuit cards**

#### **DTMF receiver card 8-port (DRC)**

Includes 8 multifrequency (DTMF) receiver circuits that are assigned to a call as needed or under host control and then released. Uses DTMF software included in the basis SDS software package.  
VRSU3151

#### **DTMF receiver card 24-port (DRC-24)**

Includes 24 multifrequency (DTMF) receiver circuits that are assigned to a call as needed or under host control and then released. Uses DTMF software included in the basis SDS software package.  
VRSU3152

#### **DTMF receiver card 48-port (DRC-48)**

Includes 48 multifrequency (DTMF) receiver circuits that are assigned to a call as needed or under host control and then released. Uses DTMF software included in the basis SDS software package.  
VRSU3153

#### **MF receiver card**

Includes 8 multifrequency (MF) receiver circuits that are assigned to a call as needed or under host control and then released.  
VRSU3154

#### **MFCR2 receiver card**

Includes 8 multifrequency (MF) transceiver circuits that can be assigned to calls requiring CCITT R2 forward/backward signaling.  
VRSU3155

#### **Digital conference card $\mu$ -Law**

Provides 64 conference ports that can be used to bridge up to 8 parties in a single conference. Software supports up to 128 simultaneous conferences.  
VRSU3156

#### **Digital conference card A-Law**

Provides 64 conference ports that can be used to bridge up to eight parties in a single conference. Software supports up to 128 simultaneous conferences.  
VRSU3157

#### **Call progress analyzer card**

Provides 24 circuits that enable the system to analyze and act upon call progress tones, such as dial tone, reorder, and ringback. Includes programmable templates.  
VRSU3158

#### **Integrated prompt/record card**

8-port  
VRSU3159

#### **Integrated prompt/record card**

64-port  
VRSU3160

#### **Integrated prompt/record card**

128-port  
VRSU3161

#### **IPRC upgrade (8-port to 64-port)**

Upgrades VRSU3159 to VRSU3160.  
VRSU3162

#### **IPRC upgrade (64-port to 128-port)**

Upgrades VRSU3160 to VRSU3161.  
VRSU3163

#### **IPRC upgrade (8-port to 128-port)**

Upgrades VRSU3159 to VRSU3161.  
VRSU3164

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\* Summa Four products incorporating E1 telephony standards are approved for use in the UK only.

### **DI to MDF cable plug-in adapters**

Three-card line/trunk midplane VRSU3201	Single-card line/trunk midplane VRSU3202
E&M midplane 2W type I VRSU3203	E&M midplane 2W type II VRSU3204
E&M midplane 4W type I/IV VRSU3205	E&M midplane 4W type II VRSU3206
Four span T1 midplane (DB15 & RJ45) Supports one Quad T1 adapter VRSU3207	Four span E1 midplane* (75 ohm BNC) Supports one Quad E1 adapter* VRSU3208
T1 MDF single span midplane VRSU3209	E1 MDF single span midplane* VRSU3210

### **Port expansion hardware**

BRC pair w/cable VRSU3301	Expansion enclosure DC VRSU3302
Expansion enclosure AC VRSU3303	Expansion subrack with midplane VRSU3304
Power module type 1 DC VRSU3305	Power module type 2 DC VRSU3306
Power module type 1 AC VRSU3307	Power module type 2 AC VRSU3308

### **System software packages**

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#### **VCO software, generic license**

Generic initial 336 time slots VRSU3501
Time slot increments (360 time slots) VRSU3502

#### **Software feature modules**

TeleRouter application software Allows the SDS to interpret dialed digit information and execute call routing decisions based on the information. Can run in conjunction with a host computer or independently. VRSU3503	
ISDN primary rate software Provides call process and administrative support for ISDN Primary Rate Interface calls. The ISDN PRI software must be ordered to implement ISDN and to download the ISDN PRI cards. Supports 23 B and D channels. VRSU3504	
ISDN NFAS software Extends D channel control to B channels that are not on the same interface. Allows a single D channel to support up to 479 B channels. Requires VRSU1504. VRSU3505	
NT DASS-2 service software VRSU3506	DPNSS service software VRSU3507
DSS1 service software VRSU3508	

Integrated SS7 basic software ANSI ISUP/TCAP VRSU3509
Integrated SS7 basic software ANSI ISUP VRSU3510
Integrated SS7 basic software ANSI TCAP VRSU3511

Integrated SS7 basic software CCITT ISUP/TCAP  
VRSU3512

Integrated SS7 basic software CCITT ISUP  
VRSU3513

Integrated SS7 basic software CCITT TCAP  
VRSU3514

Integrated SS7 redundancy software ANSI ISUP/TCAP  
VRSU3515

Integrated SS7 redundancy software ANSI ISUP  
VRSU3516

Integrated SS7 redundancy software ANSI TCAP  
VRSU3517

Integrated SS7 redundancy software CCITT ISUP/TCAP  
VRSU3518

Integrated SS7 redundancy software CCITT ISUP  
VRSU3519

Integrated SS7 redundancy software CCITT TCAP  
VRSU3520

VFEedit prompt editing software  
VRSU3521

IPRC prompt library  $\mu$ -Law  
VRSU3522

IPRC prompt library  
A-Law  
VRSU3523

System Administration  
Graphical Environment (SAGE)  
VRSU3524

Sage extended support  
VRSU3525

FrameViewer (with SAGE)  
VRSU3526

Ethernet host link  
VRSU3527

Software upgrade V2.04 to V3.2  
VRSU3528

Software upgrade V2.04 to V3.3  
VRSU3529

Software upgrade V3.0 to V3.3  
VRSU3530

Software upgrade V3.1 to V3.3  
VRSU3531

Software upgrade V3.2 to V3.3  
VRSU3532

#### **Integrated SS7 software support**

Integrated SS7 support  
ISUP/TCAP  
VRSU3561

Integrated SS7 redundancy  
support ISUP/TCAP  
VRSU3562

Integrated SS7  
support ISUP  
VRSU3563

Integrated SS7 redundancy  
support ISUP  
VRSU3564

Integrated SS7  
support TCAP  
VRSU3565

Integrated SS7 redundancy  
support TCAP  
VRSU3566

#### **Host software**

ASIST API  
VRSU3581

ASIST ADLC  
VRSU3582

ASIST Ethernet  
VRSU3583

#### **Services**

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Switch installation services  
VRSU3601

Integrated SS7 installation services  
VRSU3602

Installation services/day  
VRSU3603

Travel expenses at cost  
VRSU3604

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## Peripheral equipment

VDT DEC VT320 110V VRSU3701	Modem 110V VRSU3702
Parallel printer 110V VRSU3703	Ring generator VRSU3704
SCSI cable for IPRC VRSU3705	Switch relay RS232C (modem) VRSU3706
Switch relay RS232C (terminal/printer) VRSU3707	Cable AAC/dataprobe A/B software VRSU3710
Cable 4 line shielded M-M 25 ft VRSU3711	Cable 4 line shielded M-F 25 ft VRSU3712
Cable 9 line shielded M-M 25 ft VRSU3713	Centronics printer cable VRSU3714
Cable Centronics DB25 M/M 15 ft VRSU3715	Installation kit zone 4 earthquake VRSU3716
Rear security door VRSU3717	MDF rack VRSU3718
MDF connectors & cabling VRSU3719	DDI major failure unit VRSU3720

## Summa Four SDS Series switch products

Many Summa Four components are common to VCO/80 and SDS systems.

### Assemblies for system configuration

#### System control and common equipment

##### BASIC SDS-500 cabinet (117 VAC) V3.3

Non-blocking PCM digital switch supporting 19 network access/service circuit cards. Maximum of 152 ports (all analog) or 408 ports (all digital). Cabinet contains rectifier frame and modules (2), modular power subsystem, AC/DC rectifier charger, control subsystem, storage subsystem with a 1.44 MB floppy drive and a 40 MB hard drive, fan unit, and port subrack.  
VRSU0500

##### BASIC SDS-1000 rack (-48 VDC) V3.3

Non-blocking PCM digital switch supporting up to 1,776 network access and service ports. Includes system rack, modular power subsystem, fan unit, VME power module, control subrack, storage subsystem with a 1.44 MB floppy drive and a 40 MB hard drive, master port subrack, and M/E power module.  
VRSU1000

##### BASIC SDS-1000 cabinet (117 VAC) V3.3

Non-blocking PCM digital switch supporting up to 1,776 network access and service ports. Includes system rack, modular power subsystem, AC/DC rectifier charger, fan Unit, VME power module, control subrack, storage subsystem with a 1.44 MB floppy drive and a 40 MB hard drive, master port subrack, and M/E power module.  
VRSU1001

##### BASIC SDS-1000 cabinet (-48 VDC) V3.3

Non-blocking PCM digital switch supporting up to 1,776 network access and Service ports. Includes system rack, modular power subsystem, fan Unit, VME power module, control subrack, storage subsystem with a 1.44 MB floppy drive and a 40 MB hard drive, master port subrack, and M/E power module.  
VRSU1002

##### BASIC SDS-1000 rack (117 VAC) V3.3

Non-blocking PCM digital switch supporting up to 1,776 network access and service ports. Includes system rack, modular power subsystem, AC/DC rectifier charger, fan unit, VME power module, control subrack, storage subsystem with a 1.44 MB floppy drive and a 40 MB hard drive, master port subrack, and M/E power module.  
VRSU1003

#### Control/storage/power redundancy

Optional control/storage subsystem and power redundancy package for SDS-1000 systems includes: duplicate system controller, storage subsystem, VME power module, and M/E power module.  
VRSU1007

#### Dual DC Power Feed Termination

VRSU1423

### Country package and support\*

Country package & support VRSU3051	USA/Canada		
For the UK VRSU3052	For New Zealand VRSU3053		For China (PRC) VRSU3054
For Chile VRSU3055	For Colombia VRSU3056		For Japan VRSU3057
For Finland VRSU3058	For Netherlands VRSU3059		For Hong Kong VRSU3060
For Brazil VRSU3061	For Belgium VRSU3062		For Spain VRSU3063
For France VRSU3064			

### Integrated SS7 Interface

Integrated SS7 basic VRSU3081	2 link	Integrated SS7 redundancy VRSU3082	2 link
Integrated SS7 basic VRSU3083	4 links	Integrated SS7 redundancy VRSU3084	4 links

### Documentation

SDS document set for each switch  
VRSU1006

### Port interface cards

#### Single line interface card (SLIC-2)

Supports eight 2-wire, direct connections, each with a dedicated DTMF receiver. Also supports dry loop, dial-up connections from a CO.  
VRSU3101

#### Direct Inward Dial card (DID-2)

Supports eight 2-wire, Direct Inward Dial connections each with a dedicated DTMF receiver. Supports dial pulse detection, delay dial or wink start trunks, and battery reversal answer supervision.  
VRSU3102

#### Universal trunk card (UTC-2)

Supports eight 2-wire, originating and terminating trunk connections. CO must supply office battery.  
VRSU3103

#### 2-wire E&M trunk card

Supports eight E&M trunk connections with hookflash generation and wink detect/generation. Supports 2-wire connections.  
VRSU3104

#### 4-Wire E&M trunk card

Supports eight E&M trunk connections with hookflash generation and wink detect/generation. Supports 4-wire connections.  
VRSU3105

\* For countries other than the USA and Canada, check with Tandem for availability.

#### T1 with ejector FP

Provides a D3/D4 bipolar format, 24-channel, 1.544 Mbps PCM data stream to DS1 carrier specifications. Each T1 interface card may have up to 24 non-blocking ports assigned to incoming, outgoing and/or 2-way service on a port-by-port basis. Supports hookflash generation and wink detect/generation.  
VRSU3106

#### Quad programmable T1 card

VRSU3107

#### ISDN primary rate card NFAS capable

Provides a D3/D4 bipolar or ESF format, 24-channel 1.544 Mbps digital data stream.  
VRSU3108

#### Complex impedance single line interface (CI-SLIC)\*

VRSU3109

#### Complex impedance direct dial inward card (DDI)\*

VRSU3110

#### ECT/LCT card\*

VRSU3111

#### 2-Wire E&M (DC5) trunk card\*

VRSU3112

#### 4-wire E&M (DC5) trunk card\*

VRSU3113

#### E1 card, CAS MCL\*

VRSU3114

#### E1 card, CAS R2\*

VRSU3115

#### E1 card, CAS 31B\*

VRSU3116

#### E1 card, CAS ALS700\*

VRSU3117

#### Quad programmable E1 card\*

VRSU3118

#### E1 universal ISDN card\*

VRSU3119

### Service circuit cards

#### DTMF receiver card 8-port (DRC)

Includes 8 multifrequency (DTMF) receiver circuits that are assigned to a call either as needed or under host control and then released. Uses DTMF software included in the basis SDS software package.  
VRSU3151

#### DTMF receiver card 24-port (DRC-24)

Includes 24 multifrequency (DTMF) receiver circuits that are assigned to a call either as needed or under host control and then released. Uses DTMF software included in the basis SDS software package.  
VRSU3152

#### DTMF receiver card 48-port (DRC-48)

Includes 48 multifrequency (DTMF) receiver circuits that are assigned to a call either as needed or under host control and then released. Uses DTMF software included in the basis SDS software package.  
VRSU3153

#### MF receiver card

Includes 8 multifrequency (MF) receiver circuits that are assigned to a call either as needed or under host control and then released.  
VRSU3154

#### MFCR2 receiver card

Includes 8 multifrequency (MF) transceiver circuits that can be assigned to calls requiring CCITT R2 forward/backward signaling.  
VRSU3155

#### Digital conference card $\mu$ -Law

Provides 64 conference ports that can be used to bridge up to 8 parties in a single conference. Software supports up to 128 simultaneous conferences.  
VRSU3156

#### Digital conference card A-Law\*

Provides 64 conference ports that can be used to bridge up to 8 parties in a single conference. Software supports up to 128 simultaneous conferences.  
VRSU3157

#### Call progress analyzer card

Provides 24 circuits that enable the system to analyze and act upon call progress tones, such as dial tone, reorder, and ringback. Includes programmable templates.  
VRSU3158

#### Integrated prompt/record card V3.2

VRSU1127

#### Integrated prompt/record card 8-port

VRSU3159

#### Integrated prompt/record card

64-port

VRSU3160

#### Integrated prompt/record card

128-port

VRSU3161

#### IPRC upgrade (8-port to 64-port)

VRSU3162

#### IPRC upgrade (64-port to 128-port)

VRSU3163

#### IPRC upgrade (8-port to 128-port)

VRSU3164

### DIN to MDF cable plug-in adapters

#### 3-1 MDF adapter DIN-RJ21X

VRSU1201

#### E&M MDF 2W type I DIN-RJ2EX

VRSU1202

#### E&M MDF 2W type II DIN-RJ2FX

VRSU1203

#### E&M MDF 4W type I/IV DIN-RJ2GX

VRSU1204

#### E&M MDF 4W type II DIN-RJ2HX

VRSU1205

#### Quad T1 MDF adapter (DB15)

Converts DIN appearances to DB15 connectors. For two programmable four span T1/E1 cards.\* Occupies three slots.  
VRSU1206

#### Quad T1 MDF adapter (RJ45)

Converts DIN appearances to RJ45 connectors. For two programmable 4 span T1/E1 cards.\* Occupies three slots.  
VRSU1207

#### Quad T1 MDF adapter (RJ48)

Converts DIN appearances to RJ48H connectors. For three programmable 4 span T1/E1 cards.\* Occupies three slots.  
VRSU1208

#### Quad E1 MDF adapter (75 ohm BNC)\*

Converts DIN appearances to coax BNC connectors. For two programmable 4 span T1/E1 cards.\* Occupies three slots.  
VRSU1210

#### T1 MDF adapter D type

VRSU1211

#### 3-card E1 adapter (75 ohm BNC)\*

VRSU1212

### Port expansion hardware

#### BRC pair w/cable

VRSU3301

#### SDS-1000 EXP cabinet DC

VRSU1302

#### SDS-1000 EXP cabinet AC

VRSU1303

#### SDS-1000 expansion rack

VRSU1304

#### Expansion fan unit

VRSU1305

#### M/E power module

VRSU1306

#### Expansion subrack

VRSU1307

#### Expansion rectifier module

VRSU1308

#### Second rectifier frame

VRSU1309

#### Expansion subrack/rack

VRSU1310

\* Summa Four products incorporating E1 telephony standards are approved for use in UK only.

## System software packages

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### SDS software, generic license

Generic initial 336 time slots      Time slot increments (360 time slots)  
VRSU3501                                      VRSU3502

### Software feature modules

#### TeleRouter application software

Allows the SDS to interpret dialed digit information and execute call routing decisions based on the information. Runs with a host computer or independently.  
VRSU3503

#### ISDN primary rate software

Provides call process and administrative support for ISDN primary rate interface calls. The ISDN PRI software must be ordered to implement ISDN and to download the ISDN PRI cards. Supports 23 B and D channels.  
VRSU3504

#### ISDN NFAS software

The NFAS option extends D channel control to B channels that are not on the same interface. This allows a single D channel to support up to 479 B channels. Requires VRSU3504.  
VRSU3505

NT-DASS 2 service software  
VRSU3506

DPNSS service software  
VRSU3507

DSS1 service software  
VRSU3508

Integrated SS7 Basic S/W ANSI ISUP/TCAP  
VRSU3509

Integrated SS7 Basic S/W ANSI ISUP  
VRSU3510

Integrated SS7 Basic S/W ANSI TCAP  
VRSU3511

Integrated SS7 Basic S/W CCITT ISUP/TCAP  
VRSU3512

Integrated SS7 Basic S/W CCITT ISUP  
VRSU3513

Integrated SS7 Basic S/W CCITT TCAP  
VRSU3514

Integrated SS7 Redundancy S/W ANSI ISUP/TCAP  
VRSU3515

Integrated SS7 Redundancy S/W ANSI ISUP  
VRSU3516

Integrated SS7 Redundancy S/W ANSI TCAP  
VRSU3517

Integrated SS7 Redundancy S/W CCITT ISUP/TCAP  
VRSU3518

Integrated SS7 Redundancy S/W CCITT ISUP  
VRSU3519

Integrated SS7 Redundancy S/W CCITT TCAP  
VRSU3520

VFEdit prompt editing software  
VRSU3521

IPRC prompt library     $\mu$ -Law  
VRSU3522

IPRC prompt library    A-Law  
VRSU3523

System Administration  
Graphical Environment  
VRSU3524

Sage extended  
support  
VRSU3525

FrameViewer  
VRSU3526

Ethernet host link  
VRSU3527

### Integrated SS7 software support

Integrated SS7 Support ISUP/CAP  
VRSU3561

Integrated SS7 Redundancy Support ISUP/TCAP  
VRSU3562

Integrated SS7 Support ISUP  
VRSU3563

Integrated SS7 Redundancy Support ISUP  
VRSU3564

Integrated SS7 Support TCAP  
VRSU3565

Integrated SS7 Redundancy Support TCAP  
VRSU3566

### ASIST host software tools

#### ASIST API

C language library of software modules that build commands to control the SDS and parse reports from the SDS.  
VRSU3581

#### ASIST ADLC

Application-layer software which allows a UNIX-based host to communicate with an SDS. Implements the Async Data Link Control (ADLC) protocol that is standard with all SDS V3.0 systems.  
VRSU3517

ASIST Ethernet  
VRSU3583

### Services

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Switch installation services  
VRSU3601

Integrated SS7 installation services  
VRSU3602

Installation services/day  
VRSU3603

Travel expenses at cost  
VRSU3604

### Peripheral equipment

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UNIX 320 style terminal, 110 V  
VRSU3701

Modem 9600 baud  
VRSU3702

Printer, parallel  
VRSU3703

Ring generator (rack)  
VRSU1704

Ring generator (cabinet)  
VRSU1705

Ring generator (cabinet) 50A redundant  
VRSU1716

AC to DC conversion rectifier  
VRSU1706

Power control & battery backup cabinet  
VRSU1718

SCSI cable for IPRC  
VRSU3705

Switch relay RS232C (modem)  
VRSU3706

Switch relay RS232C (terminal/printer)  
VRSU3707

Cable AAC/dataprobe A/B S/W  
VRSU3710

Cable 4 line shld M/M 25 ft  
VRSU3711

Cable 4 line shld M-F 25 ft  
VRSU3712

Cable 9 line M/M 25 ft shielded  
VRSU3713

Centronics printer cable  
VRSU3714

Centronics DB25 M/M 15 ft  
VRSU3715

MDF rack  
VRSU3718

MDF connectors & cabling  
VRSU3719

DDI major failure unit  
VRSU3720

*Network interface cards require one of the following:*

SLC 120 ohm standard I/O module (T1)  
VRXL2017

SLC 120 ohm redundant I/O module      SLC standby I/O module (All SLCs)  
VRXL2018      VRXL2019

## Excel Switch Products

### Assemblies for system configuration

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#### MX/CPU-2000 components

LNx2000 MX/CPU base unit  
Includes MPX/CPU-2000 card, front air flow chassis, fan tray assembly,  
-48 VDC power supply card, LNX base system software.  
VRXL2081

LNx2000 MX/CPU redundant enhancement  
Includes -48 VDC power supply card, MPX/CPU-2000 card.  
VRXL2082

*MX/CPU modules require one of the following I/O modules:*  
MX/CPU RS232 I/O for 1.544/2.048 Mbps clock SIMM matrix  
VRXL2083

MX/CPU RS232 I/O for 64 Kbps clock SIMM matrix  
VRXL2084

MX/CPU Ethernet I/O for 1.544/2.048 Mbps clock SIMM matrix  
VRXL2085

MX/CPU Ethernet I/O for 64 Kbps clock SIMM matrix  
VRXL2086

#### LNx 2000 network interface cards

Smart T1 line card, 96 ports, 20 MHz  
Provides 96 telephony ports over four T1 lines. Includes two ST1LC network  
interface SIMMs. For the North American market.  
VRXL2011

Smart T1 line card, 192 ports, 20 MHz  
Provides 192 telephony ports over eight T1 lines. Includes four ST1LC network  
interface SIMMs. For the North American market.  
VRXL2012

#### LNx 2000 service resource cards

Multifunction DSP card, 20 MHz      MFDSP module      Quad C31  
VRXL2021      VRXL2022

MFDSP module      voice rec. ann. SIMM  
VRXL2023

ISDN PRI-24 D-channel engine, 20 MHz  
Manages up to 24 D channels and associated B channels on T1 spans terminated  
by the LNx 2000.  
VRXL2024

#### Software options

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LNx system software      Developers toolkit software  
VRXL2031      VRXL2032

Control II software  
VRXL2033

#### Documentation

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LNx user's manual      Developer's toolkit manual  
VRXL2041      VRXL2042

Control user's manual  
VRXL2043

#### LNx 2000 bundled card packages

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ST1LC-192 with standard I/O      MFDSP with 4 Quad C31 modules  
VRXL2101      VRXL2106

#### For more information

For additional information, please  
contact your Tandem representative  
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