

# Software Product Description

PRODUCT NAME: **StrataCom® IPX® 16/32 System Software, Version 5.1**

**SPD 38.34.00**

## DESCRIPTION

StrataCom IPX16/32 System Software is produced by StrataCom, Inc. and distributed and warranted by Digital Equipment Corporation. The StrataCom IPX 16/32 System Software provides operating system support for the StrataCom IPX 16 or IPX 32 System Unit. Together, the hardware and software provide the functionality described below.

The StrataCom IPX 16 and IPX 32 are digital network processing systems that are used to interconnect computers, PBXs, and other communications equipment in a private corporate network environment. The IPX 16 and IPX 32 are used to build digital networks, integrating data, voice, video, and FAX over high speed digital transmission services.

The IPX 16 and IPX 32 are large systems capable of backbone network applications, such as interconnecting corporate offices and manufacturing sites. The IPX 16 and IPX 32 are both floor-standing units. The IPX 16 is a single-shelf system with 16 card slots. The IPX 32 is a double-shelf system with 32 card slots. Each system has one or two Processor Control Cards (PCCs) and up to four AC or DC power supplies.

The IPX 16 can support up to eight T1 or E1 trunk lines and up to eight T1/D4 or E1 circuit lines. The remaining card slots are available for voice and data ports, allowing up to 96 voice connections and up to 72 data connections.

The IPX 32 can support up to 16 T1 or 14 E1 trunk lines and up to 16 T1/D4 or 15 E1 circuit lines. The remaining card slots are available for voice and data ports, allowing up to 192 voice connections and up to 200 data connections.

### *Packet Trunk Interfaces*

The IPX trunk cards, which provide the FastPacket® switching layer of an IPX network, provide T1, E1, and Fractional T1 interface options.

The Digital Trunk Interface Group (DTI) provides a DSX interface to T1 trunks in conformance with AT&T® Publication 62411, Accunet™ T1.5 Service Description. D4 framing is provided.

The Digital Trunk Interface Group consists of two card types: the T1 Transmitter/Receiver module (TXR) and the Protection Interface Module (PIC). There are two DTI configurations available for the IPX 16 and IPX 32: the DTI5 and the DTI7. The DTI5 configuration uses five slots, allowing space for three TXRs (two active, one redundant) and two PICs (one active, one redundant). The DTI7 configuration uses seven slots, allowing space for five TXRs (four active, one redundant) and two PICs (one active, one redundant).

The Network Trunk Card and T1 Back Card Pair support T1 Extended Superframe Format (ESF) and conform to AT&T Publication 54016. There is no support for Facility Data Link (FDL). B8ZS line coding is implemented as specified in AT&T Publication 62411.

The Network Trunk Card and T1 Back Card Pair provide interfaces to Fractional T1 trunks. The T1 interface conforms to AT&T Publication 54019B, Accunet Spectrum of Digital Services-Intermediate Bit Rates. The following line speeds are supported: 256 kbps, 384 kbps, 512 kbps, 768 kbps, and 1344 kbps.

The Network Trunk Card and E1 Back Card Pair provide an E1 interface in conformance with CCITT G.703, G.704, and G.732. 120 Ohm balanced and 75 Ohm balanced or unbalanced interfaces are supported.

The Network Trunk Card and E1 Back Card Pair support the following features for time slot 0 (TSO):

- Selectable CRC-4, as specified in CCITT G.704.
- Alarms handling with bit 3 of frames not containing the frame alignment signal will comply with G.732.
- National Bits are user-selectable and can be read.

The Network Trunk Card and E1 Back Card Pair support a selectable option for the transmission of unblocked (full 32 slots), reserve time slot 0, and reserve time slot 0 and time slot 16.

The IPX 16/32 supports traffic bridging between all supported trunks within the same node, including T1, E1, and Fractional T1.

#### *Network Interface Ports*

An adaption layer at the edge of the FastPacket network provides standard interface ports to devices serviced by the network, including circuit mode interfaces for both voice and data devices. These interfaces generate packets from information presented to the interface ports and deliver streams of packets to the system bus for transmission over the FastPacket network. Interface options include T1 and E1 digital voice ports, and RS232/V.24, V.35, RS422/449, and X.21/V.11 data interface ports.

The Digital Trunk Interface (DTI) card group provides for up to four active T1/D4 ports. The DTI Interface Group provides a DSX interface to T1 circuit lines in conformance with AT&T Publication 62411. D4 framing is provided.

The Channelized Interface Pad (CIP) and E1 Back Card Pair provide an E1 circuit line interface in conformance with CCITT G.703, G.704, and G.732. 120 Ohm balanced and 75 Ohm balanced or unbalanced interfaces are supported.

The Synchronous Data PAD (SDP) supports various back card physical interfaces including RS232C, RS232D, RS422/RS449, V.35, and X.21/V.11. The SDP supports line speed rates up to 1.344 Mbps.

The RS2323/V.24 Back Cards provide RS232/V.24 data ports that conform to CCITT V.24, EIA RS232-C, and EIA RS232-D.

The RS422/RS449 Back Cards provide RS422/RS449 data ports that conform to EIA RS422/RS449.

The V.35 Back Card provides V.35 data ports that conform to CCITT V.35.

The SDP supports X.21/V.11 data connections (via an adapter cable). This connection conforms to CCITT X.21/V.11. There is no software support for lead naming. X.21 support is for leased service only.

The Low Speed Data PAD (LDP) supports RS232C and RS232D back card physical interfaces for low speed data applications. The LDP supports line speed interfaces up to 19.2 kbps.

All Data Port Interfaces transmit data transparently at the bit, byte, and protocol level. Protocols that are transmitted transparently include, but are not limited to: X.25/HDLC, DECnet/DDCMP, SNA/SDLC, BISYNC, LAT, DECnet/HDLC, and TCP/IP.

#### *Voice Functions*

The Voice/Data Processor Model D (VDP/D) supports u-Law PCM. The VDP/D controls the assembly and disassembly of voice and data samples, performs speech detection and echo suppression, and determines whether specific voice channels are used to transmit modem-type traffic. Typically, each VDP can handle up to 47 voice channels or 20 voice-band data channels or a combination of both.

The Voice/Data Processor Model E (VDP/E) supports A-Law PCM and is otherwise similar in function to the VDP/D.

The VDP Cards provide a selectable Voice Activity Detection (VAD) feature. The VAD feature distinguishes between silence and speech on voice channels. This allows the IPX to not utilize trunk bandwidth for the transmission of silence. The VAD feature provides a user-programmable voice volume threshold, below which inputs are treated as "silence."

The VDP Card sends voice samples to the Voice Compression Detection Card (VCD) for Adaptive Differential Pulse Code Modulation (ADPCM). The VDP and VCD operate as a pair via a utility bus. The VCD converts voice samples from the standard 64 kbps PCM format to the compressed 32 kbps format and back again using the industry standard ANSI T1/Y1 ADPCM algorithm. This is a user-selectable feature.

The VDP Card automatically disables ADPCM when it detects analog data transmission at rates higher than 4800 bps, such as required for high-speed FAX or modem connections.

The CIP, the VDP, and the VCD Cards working together can support u-Law PCM to A-Law PCM conversion within a single IPX system unit. This conversion is accomplished via application of the ADPCM compression technique. This allows for trans-Atlantic and trans-Pacific voice trunking.

#### *Network Configuration Guidelines*

StrataCom IPX 16/32 System Software, Version 5.1 must be loaded to all IPX 16/32 System Units within a given IPX network.

IPX 12, IPX 16, and IPX 32 System Units may co-exist in the same IPX network, but all must be operating with Version 5.1 System Software.

Two IPX System Units must be connected via a T1 or E1 trunk line to form a minimum IPX network.

Voice connections in an IPX network requires at a minimum two VDPs or VDP/VCD pairs, one at each end of the connection. Each VCD Card in a system unit must be paired with a corresponding VDP Card.

Interoperability of the StrataCom IPX 16 or IPX 32 with various types of ancillary equipment is determined by conformance to specific interface specifications. Interoperability of the StrataCom IPX 16 or IPX 32 with specific OEM equipment, including but not limited to PBXs, echo cancelers, and channel banks, is explicitly not warranted by Digital Equipment Corporation.

## INSTALLATION

Digital recommends that StrataCom IPX 16 or IPX 32 hardware and software installation services be purchased with the product. These services provide for installation of the hardware and software by an experienced Digital specialist. Installation service for the IPX 16 and IPX 32 and value-added services including NetPlan, NetStart, and NetSupport must be quoted separately by Network Site Services. Contact your local NWSS account representative for additional information.

### *Customer Responsibilities*

Before product installation can be done by Digital, the customer must:

- Install, and demonstrate as operational, the necessary synchronous communication line(s).
- Obtain, install, and demonstrate as operational any modems, CSUs, channel banks, echo cancelers, or other equipment and facilities necessary to interface to Digital's communication equipment.
- Make available for a reasonable period of time, as mutually agreed to by Digital and the customer, all hardware, communication facilities, and terminals that are to be used during installation.

## HARDWARE REQUIREMENTS

One of the following system hardware units is required to run the StrataCom IPX 16/32 System Software Product.

DIXSA-BA	StrataCom IPX 16 System Unit, Processor Control Card Model E, flash EPROM, 120V, 600W power supply, StrataCom IPX 16 System Software License
DIXSA-BB	StrataCom IPX 16 System Unit, Processor Control Card Model E, flash EPROM, 240V, 600W power supply, StrataCom IPX 16 System Software License

DIXSA-BC	StrataCom IPX 16 System Unit, Processor Control Card Model E, flash EPROM, 48Vdc, 600W power supply, StrataCom IPX 16 System Software License
DIXSA-CA	StrataCom IPX 32 System Unit, Processor Control Card Model E, flash EPROM, two 120V, 600W power supplies, StrataCom IPX 32 System Software License
DIXSA-CB	StrataCom IPX 32 System Unit, Processor Control Card Model E, flash EPROM, two 240V, 600W power supplies, StrataCom IPX 32 System Software License
DIXSA-CC	StrataCom IPX 32 System Unit, Processor Control Card Model E, flash EPROM, two 148 Vdc, 600W power supplies, StrataCom IPX 32 System Software License

### *Other Hardware Requirements*

As part of Digital's set of software product services, remote diagnostic support of the StrataCom IPX 16 and IPX 32 may be available from a Digital Support Center. To receive this remote diagnostic service, a Bell™ 212A compatible modem is required to be connected to the Auxiliary port of the Processor Control Card located in the StrataCom IPX System Hardware Unit. The customer must maintain a dial-in communications line to the modem.

## OPTIONAL HARDWARE

The StrataCom IPX 16 and 32 can be uniquely configured to fit the requirements of the customer's network. The following hardware options can be ordered individually depending on the configuration of the customer's network:

### *Processor Group Modules*

Processor Control Card W/Flash EPROM (redundant):  
DIXCA-CA

### *Digital Trunk Interface Group Modules*

Network Trunk Card Model B: DIXTA-AA  
E1 Back Card/Single Port: DIXTA-BA  
T1 Back Card/Single Port: DIXTA-BB  
Transceiver Card Model D (TXR/D): DIXTA-CA  
Protection Interface Card/8 Port (PIC): DIXTA-DA

### *FastPacket Voice PAD Group Modules*

Voice Compressor Decompressor(VCD): DIXVA-BA  
Utility Bus (VDP-UB): DIXVA-CA  
Voice Data Pad u-Law (VDP/u): DIXVA-DB  
Voice Data Pad A-Law (VDP/A): DIXVA-DA  
Channelized Interface Port Model B (CIP/B): DIXVA-EB

*FastPacket Data PAD Group Modules*

Synch Data Pad: DIXDA-AA  
 SDP Back Card/4 Port/RS232C: DIXDA-AB  
 SDP Back Card/4 Port/RS232D: DIXDA-AC  
 SDP Back Card/4 Port/V.35: DIXDA-AD  
 SDP Back Card/4 Port/RS422/499: DIXDA-AE  
 Low Speed Data PAD (LDP): DIXDA-BA  
 LDP Back Card/4 Port/RS232C: DIXDA-BB  
 LDP Back Card/8 Port/RS232C: DIXDA-BC  
 Utility Bus (SDP-UB): DIXDA-CA

*Frame Relay PAD Group Modules*

Frame Relay PAD (FRP): DIXFA-AA  
 FRP Back Card/4 Port/V.35: DIXFA-BA

*Power Supplies*

Power Supply IPX 12 600W 110VAC: DIXPA-AA  
 Power Supply OEM 600W 110VAC: DIXPA-CA

*Miscellaneous*

IPX Installation Kit (TYPE II): DIXSA-XA  
 IPX OEM Equipment Cabinet: DIXSA-XD

**SOFTWARE REQUIREMENTS**

None

**OPTIONAL SOFTWARE***Application Software*

IPX 16/32 DFM Software License, V5.1: QL-GKVAX-AA  
 IPX 16/32 Frame Relay Software License, V5.1:  
 QL-GKXAX-AA

*Network Management Software*

StrataView/DOS License, Media, and Documentation  
 Kit, V5: QB-GKZAA-W7

**SOFTWARE LICENSING**

A separate software license is required for each StrataCom IPX 16 or IPX 32 System Hardware Unit. This license is included with each purchase of a StrataCom IPX 16 or IPX 32 System Unit, including the following variants: DIXSA-BA, DIXSA-BB, DIXSA-BC, DIXSA-CA, DIXSA-CB, and DIXSA-CC. The software may be copied in its entirety solely for back-up or archival purposes, or for downline loading to all properly licensed StrataCom IPX System Hardware Units within a network.

This software is furnished under the licensing provisions of Digital Equipment Corporation's Standard Terms and Conditions. For more information about Digital's licensing terms and policies, contact your local Digital office.

**ORDERING INFORMATION**

The StrataCom IPX 16/32 System Software is factory installed in Flash EPROM, which resides on the Processor Control Card within the StrataCom IPX 16 or IPX 32 System Hardware Unit. Additional System Software media and documentation kits for back-up purposes are available as follows:

*System Software*

IPX 16/32 System Software Media and Documentation:  
 QA-GKYAA-H7  
 IPX 16/32 System Software Documentation only:  
 QA-GKYAA-GZ

**SOFTWARE PRODUCT SERVICES**

Standard Software Product Services are available that include:

Software Product DECservice System Service (SSS/OS):  
 QT-GKYA9-A9  
 Software Product DECservice Node Service (SNS/OS):  
 QT-GKYA9-N9

The components of these services include the following:

Telephone assistance (24 x 7)  
 Critical on-site software support  
 Right-to-use new version

The following additional SPS services are available:

Media and Documentation Distribution Service (MDDS):  
 QT-GKYAA-E7  
 Software Update Installation Service (SUIS):  
 QT-GKYA9-R9  
 Software Documentation Update Service:  
 QT-GKYAA-KZ

**SOFTWARE WARRANTY**

Warranty for this software product is provided by Digital with the purchase of a license for the product. The software product is warranted to conform to the Software Product Description (SPD). Digital will remedy any non-conformance when it is reported to Digital by the customer during the warranty period.

The warranty period is one year. The warranty period begins when the software is installed or thirty days after delivery to the end-user, whichever occurs first, and expires 360 days later. All warranty related support for this software will end 180 days after release of a subsequent version.

Warranty is provided in the country of purchase in accordance with the provisions of Digital's Standard Terms and Conditions of Sale. Digital will provide the following services if the customer encounters a problem when using licensed software under normal conditions as defined by the SPD:

- a. If Digital also determines the problem to be a defect in the Software Product, Digital will provide remedial service on site if necessary to apply a temporary correction or make a reasonable attempt to develop an emergency bypass if the software is inoperable,
- b. Assist the customer in preparing a Software Performance Report (SPR). If a customer diagnosis indicates the problem is caused by a defect in the Software Product, the customer may submit an SPR to Digital.

Digital will respond to a problem reported in an SPR that is caused by a defect in the current, unaltered release of the Software Product. The response will provide temporary corrections, useful emergency by-passes and/or notice of the availability of the corrected software code.

Telephone support may be available from the Digital Telephone Support Center. Please contact your local Digital office for information on the provision of telephone support as part of the warranty.

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