



iSPAN[®] 5539F PCI T1/E1/J1 Communications Controller

Intelligent, high performance T1/E1/J1 line interface solution for next generation telecom applications based on the PCI architecture

FEATURES

The Freescale MPC8264A (PowerQUICC II™) on-board processor with a 300 MHz core and 200 MHz CPM to off-load host CPUs of line processing

Four front access, software selectable T1/E1/J1 interfaces

One front access Fast Ethernet interface for remote management capability or protocol interworking purposes

Integrated CSU on T1 lines with support for Facility Data Link eliminates the need for additional line termination equipment

On-board multiprotocol support for:

- ATM (AAL0, 2, 5)
 - SS7 (MTP1 & 2) low speed link and high speed link
 - Frame Relay
 - HDLC
 - Q.SAAL (SSCOP/SSCF)
- "Pass through" capability for surveillance applications

Plug & Play installation

Extensive suite of software development tools for seamless integration

Custom development services also available via the Interphase Professional Services Group

APPLICATIONS

Wireless BSCs/RNCs & BTSs/Node Bs

Voice over ATM

Routers PDSNs

Broadband Optical Networks

Broadband Access

GGSNs Media Gateways

SGSNs (Wireless Gateways)

Signaling Gateways

As a new generation of telecom applications emerges, the need for distributed intelligence in communications I/O modules increases. The Interphase iSPAN[®] 5539F T1/E1/J1 Communications Controller sets a new standard for performance and functionality as the industry's most advanced T1/E1/J1 controller for PCI-based telecommunications solutions. The intelligent 5539F provides a far superior I/O protocol processing capability than the passive legacy T1/E1/J1 card alternatives on the market today.

With a comprehensive array of protocol and operating system support, robust software development tools to simplify the integration process, and a 300 MHz on-board processor, the intelligent 5539F handles the 1.544 Mbps traffic on-board, freeing up cycles on the host computer. A robust suite of software integration tools enables smooth integration cycles, and custom software development is available via the Interphase professional services team with services including application development, system integration, converge layer software development, or simply consulting. The 5539F suits a variety of applications including PSTN convergence, 2G & 3G wireless, broadband access, and legacy computer telephony systems. The ATM support of the 5539F enables it to support future packet-based services, providing for seamless migration to next generation networks while preserving legacy technology investments.





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Software Support

Interphase offers a robust suite of software development tools to help shorten the learning curve and design cycle for integration projects based on the 5539F communications controller. Because integrators and equipment providers have diverse development environments, Interphase provides three types of development tools, each tailored to the needs of different integration types. The Board Development Kit (BDK) facilitates development of device drivers, embedded protocol firmware and applications for the 5539F hardware module. The Board Support Package (BSP) allows software developers to write software applications that run on a specific operating system embedded on the MPC8264 CPU. The *WARE*® Software Development Suite offers developers a set of Interphase-developed firmware protocol stacks, accessible via APIs provided by Interphase.

Hardware

The *iSPAN* 5539F PCI T1/E1/J1 Communications Controller is a member of the Interphase line of 8264A-based intelligent interface cards for carrier grade telecommunications environments. The software selectable interfaces enable maximum flexibility to support national signaling variants with just one board.

With this powerful functionality, the MPC8264A CPM can simultaneously support multiple protocols including ATM, Ethernet, Frame Relay, SS7, and others via the internal time slot assigner and the internal UTOPIA bus interface. The MPC8264A CPM has access to its own 32-bit local bus connected to the 8 MB SDRAM which can be utilized for dynamic, software-configurable route establishment.

The 5539F is also equipped with a full duplex 10/100BaseT Fast Ethernet port on the faceplate connected to an LXT971 full duplex Ethernet transceiver which can be used for a variety of bridging/routing and protocol interworking applications.

Processor/Memory

- PowerQUICC II (MPC8264A) 64-bit RISC processor allows full support of various communications protocols, reducing host CPU processing
- Dual bus architecture: 64-bit 60x bus and 32-bit local CPM bus
- 300 MHz core, 200 MHz CPM
- 64 MB of 64-bit SDRAM memory
- 4 MB downloadable 8-bit Flash Memory
- 8 MB 32-bit Connection Memory

Line Interfaces

- Four individually software selectable front T1/E1/J1 interfaces

- Each RJ-48C line is software configurable in Line Termination or Network Termination mode
- Integrated Channel Service Unit (CSU) in T1 mode
- QuadFALC™ framer supports long haul or short haul interface, AMI, HDB3, or B8ZS line coding and various Super-Frame Formats
- One RJ-45 Fast Ethernet interface on the front panel for remote boot or LAN capability with 10/100 Base-T transceiver

PCI Interfaces

- 32-bit, 33 MHz PCI interface on P1 and P2 connectors
- PCI 2.2 master/target bus interface with I²O messaging unit and four linked list 32-bit DMA exchanges

Telecom Clock Management

- 5539F can select a synchronization source from any T1/E1/J1 line
- Line interfaces can be configured in LT (clock slave) or NT (clock master) mode
- The four T1/E1/J1 lines can have independent clock rhythms
- The 5539F provides its own fixed frequency clock rhythm or the rhythm can come from one of the four lines receive signal
- Negotiation algorithm of full-duplex and half-duplex operation for 10 Mbps and 100 Mbps
- Provides internal and external loop back capabilities

Technical Specifications

Architecture

Bus Type	PCI 2.2
Bus Data Transfer	32-bit
Processor	300 MHz Motorola MPC8264A
Memory	64 MB SDRAM

Mechanical

Form Factor	PCI Half Card
Length	166.1 mm (6.5 in.)
Width	93.72 mm (3.7 in.)

Operating Environment

Power Dissipation	8 W Maximum
Temperature	0 to 55 °C (32 to 131 °F)
Altitude	0 to 15,000 ft

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About Interphase Corporation

Interphase Corporation (NASDAQ: INPH) delivers solutions for network connectivity, interworking, and packet processing for key applications for the communications, Mil/Aero, and enterprise markets. Founded in 1974, Interphase provides expert customization services and contract manufacturing, in addition to its COTS portfolio, and plays a leadership role in next generation AdvancedTCA® (ATCA), AdvancedMC™ (AMC), PCI-X, and PCIe standards and solutions. Interphase is headquartered in Plano, Texas, with sales offices across the globe.