

iSPAN[®] 3651 AdvancedMC[™]

High Density TDM-IP Interworking Card

Dual Channelized OC-3/STM-1 Gw Module for xTCA Platforms

FEATURES

Dual Channelized OC-3 / STM-1 interfaces with T1/E1 level channelization

- 126 E1 (SDH) or 168 DS1 (SONET) channels
- ATM or PPP termination on each channel
- Channel bundling with ATM IMA or PPP Multilink

Interphase Interworking software for Control Plane & User Plane applications supporting high density TDM-IP interworking:

- AAL2 & AAL5 over ATM
- IP over PPP
- UDP/IP over GE

Designed for ATCA[™] and μ TCA platforms

Single width, Mid-size or Full-size PICMG[™] AMC.0 R2.0 compliant

Front Access, with support of SFP transceivers

APS 1+1, 1:1, and 1:N within module or via AMC port 12 for inter-module APS

4 Gigabit Ethernet (AMC.2) and x1 PCI-Express (AMC.1) AMC connectivity

Wintegra[™] WinPath2[™] on-board Network Processor plus UFE3 design

APPLICATIONS

3G RNC (Radio Network Controller)

3G RAN Backhaul

3G NodeB

Voice / Media Gateway

ATM Switch / Router

Multi-service Platform

Complete TDM-IP Interworking Solution on a Card

The iSPAN[®] 3651 AdvancedMC addresses a range of applications requiring interworking solutions that bridge TDM and IP networks, and it takes advantage of open standards to offer a smooth interworking solution in a significantly less expensive format.

Single Card Solution Significantly Reduces Operating Costs

As an AdvancedMC solution, the iSPAN 3651 can be easily integrated into standard systems so the switching/routing function that typically consumes an entire system can be accessible on a single card. The 3651 enables OEMs to add tremendous value to their products with its integrated TDM-IP interworking function on a single AMC, reducing capital and operating expenses associated with reduced space, cooling and power supply costs.

High Performance TDM-IP Interworking Platform

For bridging circuit-based and packet-based networks, the iSPAN 3651 hardware delivers unprecedented performance in IP traffic interworking between ATM AAL2/AAL5 or PPP and Ethernet with full line rate speeds. Available with a robust ATM/Ethernet protocol suite for traffic management, QoS, aggregation, encapsulation, bridging, routing, and interworking, the iSPAN 3651 is a versatile platform for custom interworking application development.

User-friendly, Comprehensive Application Software Enables fast time to market

With the Interphase Interworking application, the iSPAN 3651 becomes an integrated gateway, specifically designed to support channelized OC-3/STM-1 interfaces in ATCA and MicroTCA (μ TCA)-based systems.

For AAL2, AAL5 or PPP data, the interworking functionality enables the transport over IP of voice, data and control traffic to/from other processing units in the system via the Gigabit Ethernet backplane.

With its high T1/E1 capacity, the iSPAN 3651 gateway AMC is an ideal solution for Radio Access Network (UTRAN) Elements that connect to the 3GPP Iub interface, such as RNCs, NodeBs, and Access gateways and concentrators.

The software, fully embedded on the card, includes the protocol layers, the management and configuration plane, the line/equipment protection, and the data interworking application. Configuration and control of the application is performed over IP via SNMP, CLI or the Interphase MCCI API.



iSPAN[®] 3651 Details

AdvancedMC[®] Connectivity

- PCI-Express x1 link on AMC port 4 (AMC.1 Type 1)
- 4 Gigabit Ethernet links on AMC ports 0, 1, 8, 9 (AMC.2 Type E2 & 2)
- APS Update Channel on AMC port 12
- Telecom clocks on AMC TCLKA & TCLKC (in), and TCLKB & TCLKD (out)
- PCI-Express 100 MHz clock input on AMC FCLKA

Processor / Memory

- Wintegra[™] WinPath2[™] Access Packet processor, integrating:
 - 6 engines @ 300 MHz for fast-path processing,
 - and one MIPS 24K microprocessor core @ 600 MHz for Control Plane protocol processing
- 2 x 256 MB DDR2 SDRAM for the System/Host and Packet memory
- 16 MB ZBT SSRAM as Parameter memory
- 64 MB boot flash and 256 MB NAND flash
- Wintegra UFE3 logic in FPGA

Network Interfaces

- Two SFP cages for 2 OC-3/STM-1 links
- PMC-Sierra[™] TEMUX168 dual SONET framer

Automatic Protection Switching (APS):

- Intra-AMC: linear 1+1
- Inter-AMC: linear 1+1, with a 622 Mbps serial link via AMC port 12.

Telecom Clock Management

iSPAN 3651 supports 3 types of clock reference (jitter-filtered with a PLL):

- Free running internal clock (20 ppm oscillator)
- Recovered clock (loop back timing) from one of the OC-3 ports
- System clock from the TCLKA or TCLKC AMC ports

Independently, recovered clocks can be sent to the TCLKB or TCLKD AMC ports, for instance for both SONET/SDH and T1/E1 reference.

Software

The iSPAN 3651 is supplied with a Board Development Kit (BDK), including a boot firmware, Built-In-Self-Tests and several tools.

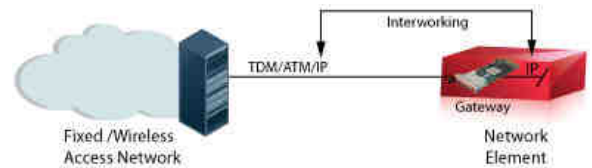
For embedded software development, OS-specific Board Development Packages (BSP) can be supplied, including drivers, utilities and Wintegra's WinPath Device Driver Interface (WDDI).

However, the easiest and fastest software solution is Interphase Interworking Application, which turns the iSPAN 3651 into a real gateway AMC.

Interphase Interworking Application

Loaded on the iSPAN 3651, this fully integrated software supports the following interworking functionality:

- AAL2-IP (i.e. AAL2 CPS or SSSAR ↔ UDP/IP)
- AAL5-IP (i.e. AAL5 ↔ UDP/IP)
- PPP-Ethernet (i.e. IP/PPP ↔ IP/Eth)



Technical Specifications

Architecture

Processor	Wintegra WinPath2 WIN867
RAM	256 + 256 MB DDR2 SDRAM + 16 MB ZBT SRAM
ROM	64 MB Boot, 128 MB NAND Flash
AMC Connectivity	x1 PCI-Express, 4 GE, APS, TCLKA-D
SONET / SDH	2x OC-3/STM-1, PMC-Sierra TEMUX168 framer

Mechanical

Form Factor	AdvancedMC Single width, Full/Mid-size
Length	181.5 mm (7.15 in.)
Width	73.5 mm (2.89 in.) (single-width)

Operating Environment

Power Consumption	32 W
Temperature	0 to 55° C (32 to 131° F) ambient
Storage Range	-40 to 80° C (-40 to 176° F)
Relative Humidity	5% to 95% non-condensing

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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.

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