

## INTRODUCTION

EP4848 is a standalone board that allows operation and interoperability testing through the AT4848 interfaces. It is implemented as a full STS-48/STM-16 or STS-12/STM-4 micro-MSPP. This data sheet provides an overview of the capabilities and features of the EP4848. Evaluation and testing can be controlled via a 10/100BT Ethernet port connected to either a PC or a LAN. A standard RS-232 debugging port is also provided.

## DESCRIPTION

The EP4848 provides standard interfaces for connections to external PDH, SONET/SDH, packet switching/routing and Ethernet test equipment. It is also an evaluation environment that allows for complete test coverage of the AT4848, including such features as PRBS generation and BER detection.

- ❑ On the SONET/SDH interface, the EP4848 provides four STS-48 optical SFP connectors. Under software control, any port in this interface can be configured as either STS-48 port or STS-12 port.
- ❑ Individually configurable client STS-12/STM-4 or STS-3/STM-1 ports can be optionally provisioned for adding/dropping services connected via SFP connectors.
- ❑ The EP4848 supports two SFP optical data ports which may be configured for either Gigabit Ethernet or Fiber Channel. It also supports two 50Ω electrical ports for either ESCON or DVB-ASI operation.
- ❑ On the PDH interface, the EP4848 provides three standard DS3/E3 connections through three sets of 50Ω SMA connectors. It also supports 14 standard DS1/E1 connections through 14 sets of 50Ω RJ-45 connectors.

## FEATURES

The EP4848 is an evaluation and demonstration platform for the AT4848 and its surrounding devices. It can be used to evaluate the performance of the AT4848 using on-board test capabilities or external SONET/SDH, Next-Gen SONET/SDH, PDH and Ethernet test equipment. The EP4848 can also be used to interface to an existing product or network for interoperability testing.

The EP4848 can be used simply using pre-configured or dynamically variable channel allocation demonstrations of the capability of the AT4848.

The features of the EP4848 include the following listed ones:

- ❑ Quad Optical individually configurable STS-48/STM-16 or STS-12/STM-4 interfaces for SONET/SDH point-to-point, linear or ring network connections.
- ❑ Quad optical individually configurable STS-12/STM-4 or STS-3/STM-1 interfaces for SONET/SDH client side services.
- ❑ Dual gigabit optical data interfaces for Ethernet or Fiber Channel over next-gen SONET/SDH through GFP-T mapping for GbE/FC or Ethernet MAC for GbE transport supported with combined VLAN/MPLS protocols.
- ❑ Single optional DVB-ASI port for DVB over next-gen SONET/SDH through GFP-T mapping.
- ❑ Single optional ESCON port for enterprise services over next-gen SONET/SDH via GFP-T mapping.
- ❑ Octal Fast Ethernet interface for Ethernet over next-gen SONET/SDH via Ethernet MAC.
- ❑ Fourteen DS1/E1 and Triple DS3/E3 interfaces are provided that can be configured across the total capacities of 336 and 12 streams of these PDH services.
- ❑ DS0 interface for connecting to a digital switch or POTS/ISDN subscriber emulating tester.
- ❑ Triple electrical EC-1 ports for evaluating SONET/SDH flexible multiplex capability of the AT4848.



Figure 1: EP4848 box – Front Side



Figure 2: EP4848 box – Rear Side

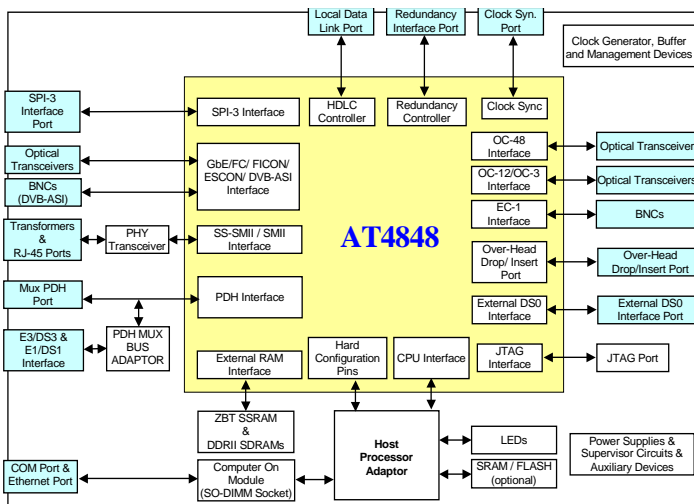


Figure 3: Block Diagram and Photo of the EP4848



## OPTICAL INTERFACES

- Quad individually configurable OC-48/STM-16 or OC-12/STM-4 ports
- Quad individually configurable OC-12/STM-4 or OC-3/STM-1 ports
- Dual GbE/FC ports
- Single optional ESCON port

**Note:** All multi-rate optical transceivers are small form-factor pluggable optical module. By using SFP optical module, it is flexible for optical wavelengths, different distances, optical fiber modes, as well as optical connector type selection.

## AUXILIARY PORTS

- SPI-3 1.27 mm connector
- PDH MUX 1.27 mm connector
- TOH/POH Drop/Insert 1.27 mm connector
- External DS0 Interface 1.27 mm connector
- Local Data Link 1.27 mm connector
- Redundant Controller 1.27 mm connector
- Clock Synthesizer 2.54 mm connector
- JTAG 2.54 mm connector

## POWER REQUIREMENTS

- Power Inputs Options: -48VDC@1.5A (Typical)

## EVALUATION PLATFORM OPTIONS

- Configured by software and customer selections

## SOFTWARE SUPPORT

The EP4848 includes a complete set of applications, which are used to demonstrate the management of all interfaces in compliance with ITU, Telcordia standardized functions, including

- Provisioning and Configuration
- Fault Management
- Performance Monitoring

The EP4848 Software is comprised of two parts:

- The first part is the EP4848 Management Station that runs on a standard PC with Windows NT/2000/XP operating system. This management station utilizes Graphical User Interface (GUI) based software that allows full control and monitoring of the EP4848.
- The second part is the EP4848 embedded software, which is stored in the flash disk of the Computer-On-Module called DIMM-PC/520-IE It includes two layers:
  - Application layer implements the tasks to support operations including configuration, fault monitoring, performance monitoring. It communicates with EP4848 Management Station through the Ethernet management port.
  - Device driver is a set of high level and low level APIs, which are CPU and OS independent.

EP4848 embedded software runs on Arrive Technologies – Embedded Linux operating system with the real-time feature of Real-Time Application Interface (RTAI-3.1), and it can be ported to other operating systems through the Operating System Abstraction Layer (OSAL).

## ELECTRICAL INTERFACES

- Single optional DVB-ASI port - 50Ω SMA connector type
- Single optional ESCON port - 50Ω SMA connector type
- Octal Ethernet 10BASE-T/100BASE-TX ports - RJ-45 connector type
- Triple EC-1/STS-1 ports - 50Ω SMA connector type
- Triple T3/E3 ports - 50Ω connector SMA type
- Fourteen T1/E1 ports - 50Ω RJ-45 connector type
- Single input reference clock – 50Ω SMA connector type
- Single output reference clock – 50Ω SMA connector type

## CONTROL COMPONENTS

- Based on the AMD® Elan™ SC520 Processor @ 133 MHz, DIMM-PC/520-IE Computer On Module supports up to 32 MB of DRAM and up to 32 MB Flash on board. The DIMM-PC/520-IE is equipped with one 10/100Mbit Ethernet port, and one serial port
- Optional on-board Stratum-3 Oscillator, Clock Buffer devices, and clock Management Device.
- Thermal Supervisor
- 48V isolated DC/DC Power Converter and DC/DC Step-Down Power Supplies

## EVALUATION PLATFORM CONTENTS

- CD-ROM with Documentation and Software (1)
- EP4848 Application Board Description hard copy (1)
- EP4848 System Installation Guide hard copy printout (1)
- EP4848 Box (1)
- Power cord for power supply (1)
- DIMM-PC/520-IE Computer-On-Module (1)

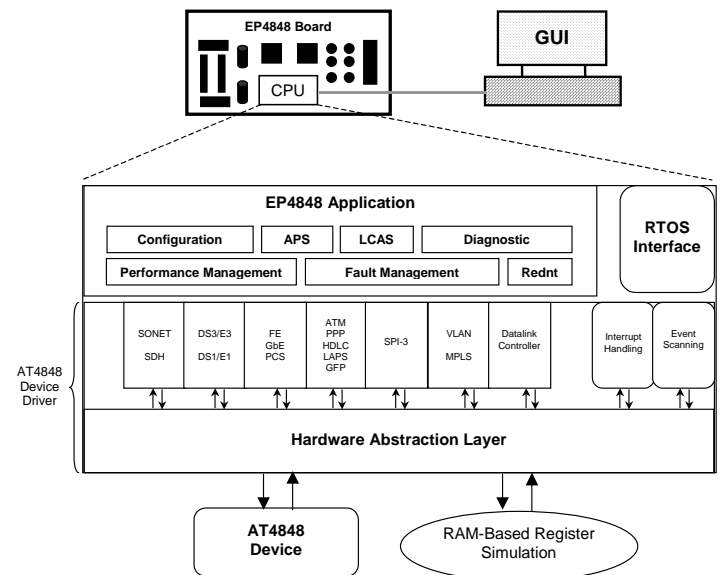


Figure 4: EP4848 Embedded Software Architecture