

T4410a - Data & Control Planes - Ethernet /PCIe Switch Module Profiles: MOD3-SWH-6F6U-16.4.1-n; MOD3-SWH-6F8U-16.4.10-n

Elma's Target Application System Guides identify the building blocks necessary to design an OpenVPX system targeted for use in compute intensive applications requiring high bandwidth signal processing and data distribution.

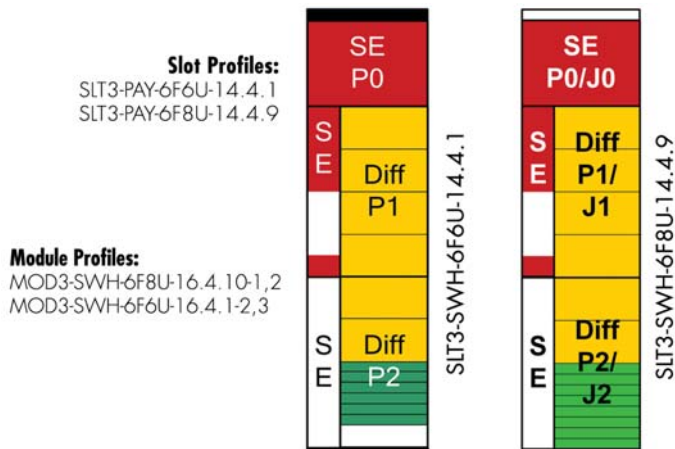
This guide addresses Elma's T4410a 3U Data Plane and Control Plane networking switch. Handling both PCIe and Gigabit Ethernet links in an OpenVPX backplane, the T4410a establishes two separate star sections or clusters for front end and back end processing in systems designed to address applications such as radar and image processing.

VPX Target Application System Guides take the guess work out of VPX system integration by helping you define a system optimized for your application. From initial board selection to final chassis level solution, our Application Guides walk you through the component selection process while ensuring complete interoperability.

Elma's VPX Target Application System Guides:

- Identify the optimal starting board and its applicable slot profiles
- Recommend supporting boards based on their profiles and function
- Determine the backplane topology for data flow and application
- Identify a standard OpenVPX backplane profile, based on standard backplane profiles
- Identify standard OpenVPX chassis profile ready for development or deployment

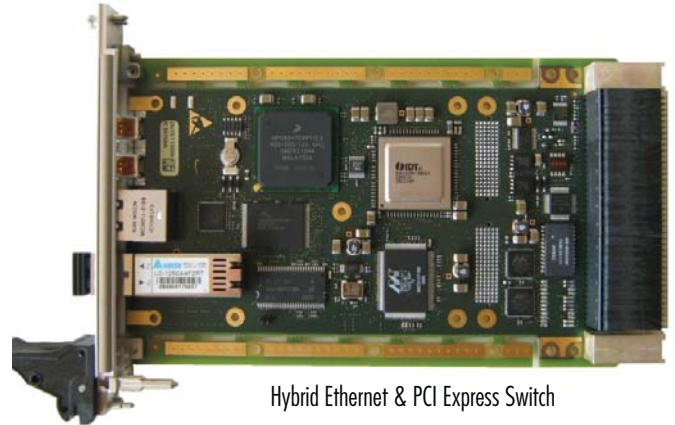
The following Slot Profiles are compliant with the T4410a PCIe and Gigabit Ethernet Switch:



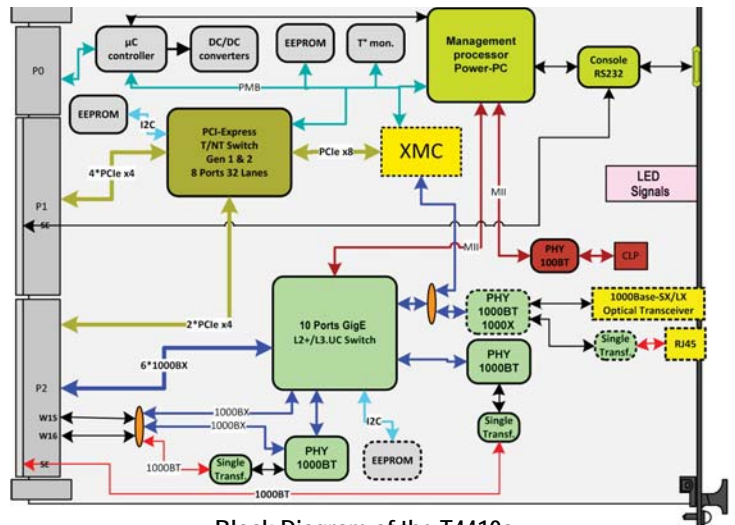
Reference:

UTP - Ultra Thin Pipe
TP - Thin Pipe
FP - Fat Pipe

DFP - Double Fat Pipe
QFP - Quad Fat Pipe
OFF - Octal Fat Pipe



Hybrid Ethernet & PCI Express Switch



Block Diagram of the T4410a

(a full size drawing can be found on the board datasheet)

Model Number: T4410a

Data Plane: PCI Express Interfaces

- Six 4 lane PCIe ports on P1/P2

Control Plane: Ethernet Interfaces

- Six (or eight) 1000Base-BX ports on P2 (8 ports =>MOD3-SWH-6F8U version)
- Two (or one) 1000Base-T ports on P2 (1 port =>MOD3-SWH-6F8U version)
- One front auto media detect Ethernet port, 10/100/1000 Base-T Copper Ethernet (RJ45) - 1000 Base-SX (or LX) optical Ethernet

Miscellaneous:

- One RS232 port, front mini-USB or on P1 connector
- Status LED indicators (front and onboard)

Optional Rear I/O Transition Module:






Model Number: T4410a-RTM12

- RS232 port on P0
- 1000 Base-T Ethernet ports
 - VPX P2 single ended
 - VPX P2 wafers 15 and 16 (6F6U only)
- Maskable reset



Companion Boards - OpenVPX Slot Profiles

The supporting boards shown below allow an entire VPX system to be configured and targeted at the needs of compute intensive, high bandwidth signal processing applications. Based on their individual OpenVPX Module Profiles, their function and capabilities, and the application requirements, the following boards are recommended in support of the T4410a Gigabit Ethernet and PCIe switch.

Model / Description	Compatible Module Profiles	Compatible Slot Profiles
 <p>TIC-DC2-VPX3a 3U VPX Intel Core2 Duo SL9380 or SU9300 based Single Board Computer</p>	MOD3-PAY-2F2U-16.2.3-3 MOD3-PAY-2F2T-16.2.5-2 MOD3-PAY-1D-16.2.6-1 MOD3-PAY-2F-16.2.7-1 MOD3-PAY-3F2U-16.2.12-2	SLT3-PAY-2F2U-14.2.3 SLT3-PAY-2F2T-14.2.5 SLT3-PAY-1D-14.2.6 SLT3-PAY-2F-14.2.7 SLT3-PAY-3F2U-14.2.13
 <p>TIC-PPC-VPX3a 3U VPX MPC8640(D) e600 PowerPC based Single Board Computer</p>	MOD3-PAY-1D-16.2.6-n MOD3-PAY-2F-16.2.7-n MOD3-PAY-1F4U-16.2.8-n MOD3-PAY-8U-16.2.9-n	SLT3-PAY-1F2U-14.2.12 SLT3-PAY-2F2T-14.2.5 SLT3-PAY-1D-14.2.6 SLT3-PAY-2F-14.2.7
 <p>TIC-XMC-VPX3a 3U VPX Carrier Card with one XMC site for multiple configuration options</p>	Multiple, depending on the XMC configuration	Multiple, depending on the XMC configuration
 <p>VPX-5311 3U VPX storage module supports one rotating or solid state SATA drive</p>	MOD3-STO-2U-16.5.1-1,2	SLT3-STO-2U-14.5.1
 <p>TIC-FEP-VPX3b 3U VPX Front End Processor (FEP) board with Xilinx Virtex®-6 FPGA and 1 FMC site • Accepts any VITA 57 FMCs (FPGA Mezzanine Cards)</p>	MOD3-PAY-1F2U-16.2.11-2 MOD3-PAY-1F2F2U-16.2.2-4 MOD3-PER-1F-16.3.2-2	SLT3-PAY-1F2U-14.2.12 SLT3-PAY-1F2F2U-14.2.2 SLT3-PER-1F-14.3.2

Below are samples of available FPGA Mezzanine Cards (FMCs). Please contact us for more information on the complete range of FMCs available.

200Msps to 2.5Gsps ADC



QUAD 40Msps to 550Msps ADC



QUAD 20Msps to 400Msps ADC



OpenVPX Target Application System Guide

Whether it's initial board selection, backplane profile design or integrating the final system, Elma has the knowledge, experience and products to manage VPX system design and provide fully integrated complete chassis level solutions. This system configuration can be adapted for use in various chassis configurations including desktop tower, E-Frame or rack-mount designs.



Description	Environment
E-Frame & Tower Development Platforms - Provides easy access to both sides of the board - Available for 3U and 6U boards - Complete access to rear of the backplane for I/O implementation	Lab, desktop use
19" Rackmount Platforms - 19" rackmount chassis in a wide selection of configurations - Vertical or horizontal board layouts	Standard environmental conditions, such as IT Rooms
Rugged Conduction or Convection Cooled Boxes (ATR) - Available in standard sizes per ATR convection (1/4, 1/2, 3/4, 1) - Accommodates 3U and 6U VPX cards - Supports AC and DC power configurations - Configurable I/O panel for external circular connector	MIL STDs Environments (shock, vibration, heat/cold, etc.); avionics, vetronics, shipboard

OpenVPX Target Application System Order Information

Your application may require variations from the system described. Consult Elma regarding other configuration options. To get started, order from the following chassis and board options or move to a solution.

Integrated Chassis Model Number: SEFV3PXCNICXNVN

Description: Nine slot E-frame development chassis with BKP3-CEN09-15.2.17-n backplane, TIC-DC2-VPX3a SBC, T4410 Ethernet/PCIe Switch, TIC-FEP-VPX3a with SX315T Virtex 6 FPGA, and TIC-PPC-VPX3a PowerPC SBC. Includes Linux 2.6.35 Kernel CentOS chassis software development kit.

Chassis Model Number: 39E09BWX98Y2VCHX

84HP wide E-Frame development chassis with a 9-slot, 3U OpenVPX backplane designed to Profile BKP3-CEN09-15.2.17-n

Convection Cooled Switch Model Number: T4410a-010 602-010-740

Conduction Cooled Switch Model Number: T4410a-010 602-010-795

Software Development Kit Order Number: TICLinux_SDK

