NETernity™ GBX411

3U VPX Fully Managed Multilayer Ethernet Switch with 12 or 24 GigE plus 4 10GigE ports

The NETernity™ GBX411 is a fully managed (Layer 2/3) 3U VPX Ethernet switch designed to meet the most demanding requirements for network switching in tactical applications. The GBX411 with its configuration options and OpenWare switch management software is designed to support new military applications and defense initiatives, and is switch compliant to the U.S. Army's VICTORY requirements.

The switch is available in both air-cooled and conduction-cooled versions providing either twelve 1000BASE-T or twenty-four 1000BASE-KX Gigabit Ethernet ports plus four 10 Gigabit Ethernet ports. Two of the 10 Gigabit Ethernet ports support 10GBASE-KX4 and are routed for rear I/O.

The other two 10 Gigabit Ethernet ports are available on the front panel supporting SFP+ 10GBASE-SR/LR/ER connections.

The ECC protection on the management processor memory offers higher reliability in harsh environments.

The GBX411 delivers full wire-speed switching that can be fully managed and easily deployed. Proven, high-performance architecture and a multilayer switching fabric provides a rich feature set, broad functionality, scalability, and product life longevity. Based on a PowerPC management processor and a leading high-performance switch fabric, the GBX411 has integrated Layer-2/3 switching capabilities as well as the ability to support higher Layer 4-7 functionality when required.

FEATURES:

- VICTORY switch compliant
- 3U VPX form factor
- VITA 65 OpenVPX Compliant
- OpenVPX profiles:
- MOD3-SWH-2F12T
  - 2x 10GBASE-KX4 and 12x 1000BASE-T rear I/O ports
- MOD3-SWH-2F24U
  - 2x 10GBASE-KX4 and 24x 1000BASE-KX rear I/O ports
- Optional configurations:
  - 8x 1000BASE-T, 8x 1000BASE-KX and 2x 10GBASE-KX4 rear I/O ports
  - 4x 1000BASE-T, 16x 1000BASE-KX and 2x 10GBASE-KX4 rear I/O ports
- Two SFP+ 10GBASE fiber ports on front panel available for air cooled models
- Serial Console
- OpenWare™ Switch Management Software
- Wire speed Layer 2/3 switching including IPv6
- Multicast support: IGMP Snooping Querier and MLD Snooping Querier

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FEATURES (continued):

- Allows up to 4096 VLANS
- L-3 protocol support including OSPF, RIP and VRRP
- Precision Time Protocol 1588v2 Transparent Clock Support
- Air cooled and conduction cooled models
- Rugged Levels 1 thru 5 available
- Built-in Test
- Denial-of-service attack prevention
- Sanitization capability
- Board Management Microcontroller (BMM)
- Spanning Tree and Link aggregation
- Remote management via Telnet, SSH and SNMP
- Support for Jumbo Frames up to 12KB
- ECC protection management processor memory
- Energy Efficient Ethernet (IEEE 802.3az) with built-in cable diagnostics
- Key Specifications
- IEEE 802.3-2005
- IPMI 2.0
- IEEE 802.1D (Prioritization)
- IEEE 802.3ad (Link aggregation)
- IEEE 802.1Q (VLAN tagging)
- IEEE 802.1Q-2005 (Multiple Spanning Tree)
- IEEE 802.1X (Port Authentication)
- IETF RFC 4541 (IGMP & MLD Snooping)
- RoHS 2011/65/EC compliant
- ANSI/VITA 46.0-2007
- ANSI/VITA 46.7-2012
- VITA 48.2 (REDI)

The switch management environment for the GBX411 is Abaco's in-house developed and supported OpenWare™. OpenWare™ offers comprehensive management features for Layer 2/3 switching and routing. It provides support for a wide range of RFC's and MIB's with extensive capabilities for Multicast, Quality of Service, VLANs, and Differentiated Services. OpenWare can be modified to meet particular customer requirements. OpenWare™ allows for a number of ways to manage the switch via serial console, SNMP, Telnet, SSH or Web Interface. The sanitization capability allows a user to overwrite non-volatile storage as required.

The GBX411 has built-in-test capability including Power-On-Bit, Continuous Bit and Initiated Bit. In addition precision time protocol 1588v2 transparent clock functionality is supported to enable local synchronization. IPMI 2.0 functionality is available allowing the board to be controlled by a system controller.

The GBX411 provides a migration path for Abaco's GBX410. The configuration of the GBX411 with twelve (12) GigE ports (plus two 10GigE ports) offers the same hardware pinouts as the GBX410. In addtion, the GBX411 offers enhanced switch management software capabilities.

Why choose Abaco NETernity Ethernet Switches?

Abaco has a wealth of expertise in military, commercial and telecommunications markets, making us unique in the embedded computing industry – we have an in-depth understanding of customer application requirements and how these can be addressed using communication protocols.

Abaco's line of NETernity Ethernet Switches is unmatched. Not only is our product selection extensive, but the switches themselves provide maximum flexibility, performance, and density. NETernity Ethernet Switches are available in a variety of form factors, interfaces, levels of ruggedness, port configurations, media support, and types of management.
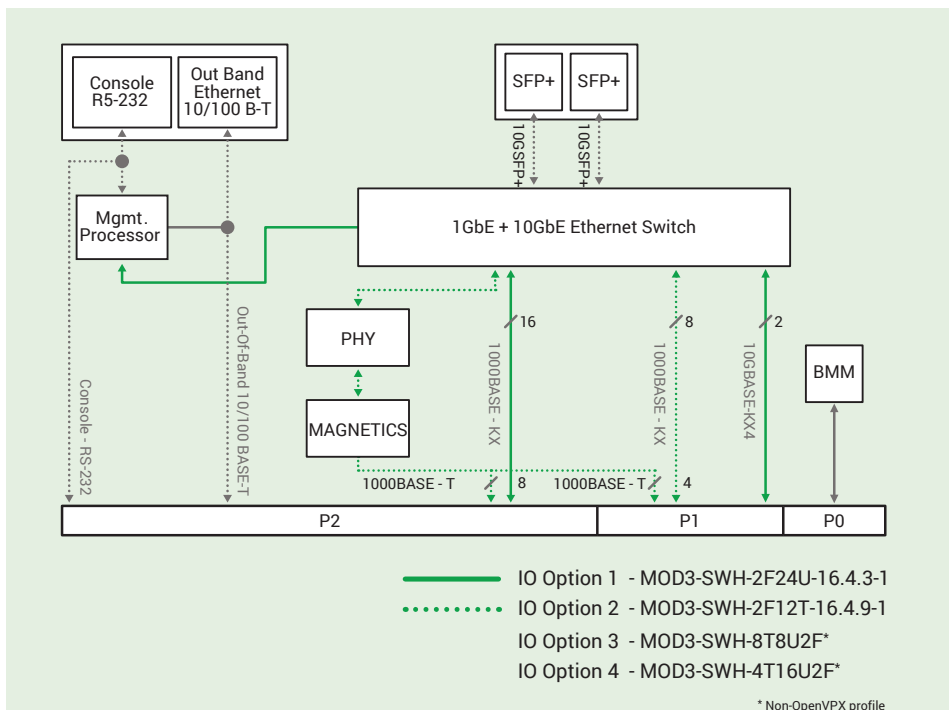
Fully Managed switches are Layer 2/3+ switches with control and monitoring capabilities via local or remote access. Layer 2 managed switches are switches with control and monitoring capabilities, but with the management limited to layer 2 capabilities. These are also accessed locally or remotely. Unmanaged switches are Layer-2 switches with no operator interfacing and are designed for quick deployment in simpler applications.

Call Abaco's knowledgeable sales team for help in selecting the switch that best meets your applications requirements.

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Block diagram

IO Option 1 - MOD3-SWH-2F24U-16.4.3-1
IO Option 2 - MOD3-SWH-2F12T-16.4.9-1
IO Option 3 - MOD3-SWH-8T8U2F*
IO Option 4 - MOD3-SWH-4T16U2F*

* Non-OpenVPX profile

Specifications

Physical Interface
- 2F12T version: 12x 1000BASE-T Gigabit and 2x 10GBASE-KX4 ten Gigabit Ethernet ports are routed to the VPX backplane along with the Ethernet management port and serial console.
- 2F24U version: 24x 1000BASE-KX Gigabit and 2x 10GBASE-KX4 ten Gigabit Ethernet ports are routed to the VPX backplane along with the Ethernet management port and serial console.
- 2F8U8T version: 8x 1000BASE-T, 8x 1000BASE-KX and 2x 10GBASE-KX4 ports are routed to the VPX backplane along with the Ethernet management port and serial console
- 2F16U4T version: 4x 1000BASE-T, 16x 1000BASE-KX and 2x 10GBASE-KX4 ports are routed to the VPX backplane along with the Ethernet management port and serial console
- Front panel supports up to 2x 10GBASE-SR/LR/ER SFP+ transceivers (ordered separately)
- Out of Band management port
- Serial Console port

Form Factor
- 3U OpenVPX™
- 3U VITA48 REDI for 2LM
- Weight
  - Air cooled (without front panel SFP+ transceivers installed) - 550gm
  - Conduction cooled (without 2LM) - 590gm
  - Conduction cooled (with 2LM) - 690gm

OpenVPX™ Profiles
- MOD3-SWH-2F12T
- MOD3-SWH-2F24U

Non-OpenVPX Profiles
- Equivalent of:
  - MOD3-SWH-8T8U2F
  - MOD3-SWH-4T16U2F

Power Requirements (Typical)
- GBX411 with Twelve (12) 1000BASE-T and Two (2) 10GBASE-KX4 ports: 31.0 Watts
- GBX411 with Twelve (12) 1000BASE-T, Two (2) 10GBASE-KX4 ports andTwo (2) 10GBASE-SR ports: 32.0 Watts

MTBF (75C, ground benign, controlled)
- 2F12T configuration – 238,125 hours
- 2F24U configuration – 247,101 hours
- 2F8U8T configuration – 241, 424 hours
- 2F16U4T configuration – 243, 646 hours

	Level 1	Level 2	Level 3	Level 4	Level 5
Cooling Method	Convection	Convection	Convection	Conduction	Conduction
Conformal Coating	Optional	Standard	Standard	Standard	Standard
High/Low Temp	0°C to +55°C	-20°C to +65°C	-40°C to +75°C	-40°C to +75°C	-40°C to +85°C
Operational	(300 ft/m)	(300 ft/m)	(600 ft/m)	At cold wall	At cold wall
Random Vibration	0.002g2/Hz*	0.002g2/Hz*	0.04g2/Hz**	0.1g2/Hz**	0.1g2/Hz**
Shock	20g***	20g***	20g***	40g***	40g***

* With a flat response to 1000Hz, 6dB/Oct roll-off from 1000 to 2000Hz ** From 10 to 2000Hz
*** Peak sawtooth 11ms duration

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This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/).
This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)

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Americas: 866-OK-ABACO or +1-866-652-2226   **Asia & Oceania:** +81-3-5544-3973
Europe, Africa, & Middle East: +44 (0) 1327-359444
Locate an Abaco Systems Sales Representative visit: abaco.com/products/sales

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