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Find the *Curtiss-Wright VPX6-684-A01028-M5* at our website: *Click HERE*



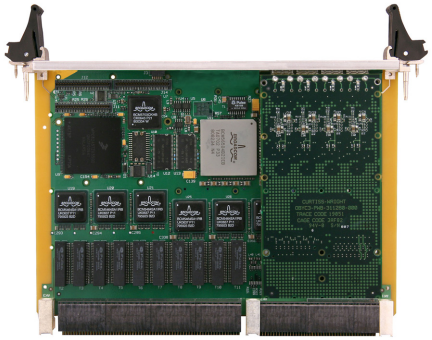




Data Sheet

VPX6-684 FireBlade

6U VPX™ 24x 1GbE and 4x 10GbE Managed Ethernet Switch and Router



Features

- Managed or unmanaged intelligent multi-layer (Layer 2/3) Gigabit Ethernet switch, designed for highest port density in a 6U VPX™ form factor
- Supports complete range of convection- and conduction-cooled formats (IEEE 1101.1, IEEE 1101.2)
- Data plane designed with Broadcom® StrataXGS® III switch chip with up to 24 wire-speed 10/100/1000 Mbps non-blocking, auto-negotiating ports
- Up to four 10 GbE XAUI interfaces for high speed backbones
- Option of up to four optical Ethernet (1000Base-SX) interfaces
- Control and management functionality designed using a Freescale™ Power Architecture® MPC8245 integrated system controller
- Enhanced security with the PMC-110 CryptoNet™ to provide an ICSA certified stateful firewall that protects against evasive attacks (optional)
- Supports both in-band management through any of the 24-ports, and out-of-band management through a serial EIA-232 interface
- Field-upgradeable through a serial EIA-232 interface or a 100Base-TX debug Ethernet interface
- Fully integrated Layer 2 switching, Layer 3 routing, Quality of Service (QoS), IP multicast, security and network management
- Intuitive Command Line Interface (CLI), Web interface, SNMP and Telnet access for easy configuration and network management
- Rear Transition Module (RTM) with cabling to enable up to 24 GbE RJ45 interfaces, one 100Base-TX debug port, two EIA-232 serial interfaces and four 10 GbE Interfaces for easy network setup
- Front panel LED status indicator provides per port link speed (10, 100, 1000 Mbps or 10 Gbps) and per-port link activity (receive or transmit)
- Fits in a single VITA 46 switch slot

Overview

Enabling the vision of network centric operations and extending the reach of transformational networks, the VPX6-684 FireBlade is a GbE multi-layer switch that is ideally suited for building Intra-Platform Networks (IPNs) for air, land, and sea vehicles or ground stations. VPX6-684 FireBlade enables fast, reliable forwarding (switching and routing) of control and data packets with up to 24 wire-speed 10/100/1000 Mbps interfaces and up to four 10 Gbps uplinks that can be used to connect multiple chassis, cards, or even processors within platform networks.

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Using star, dual star, mesh and hybrid network topologies, the VPX6-684 FireBlade provides a flexible, cost-effective solution that can be used to architect reliable 1 Gbps or 10 Gbps communications infrastructure for current and future networked platforms. Redundancy and fail-over can be implemented using dual star and mesh networks while investment dollars can be retained by implementing hybrid network topologies that coexist with legacy and/or next generation interconnection strategies. Ready to deploy, the Curtiss-Wright Defense Solutions VPX6-684 FireBlade allows systems integrators to reduce development costs and Time-to-Market (TTM) by simply plugging the VPX6-684 FireBlade into their 6U VPX chassis, connecting the appropriate Ethernet ports, and focusing on the optimal partitioning and segmentation of their application's network.

Designed for Maximum Performance

Allowing system integrators to develop and deploy switch-fabric based architectures today, the VPX6-684 FireBlade provides a completely integrated and unified management, control, and data plane solution for wire-speed performance of switched GbE traffic. Whether it is small, medium or large IPNs, the VPX6-684 provides unique port combinations that scale from 12, 20 and 24 GbE port versions.

The VPX6-684 FireBlade is comprised of a basecard (Figure 1) with 24x 1 GbE and 4x 10 GbE interfaces routed to the backplane with an option of four optical 1 GbE ports that are routed to the front for air-cooled environments or can be routed to the back using flexible pigtail connectors. Table 1 lists the various port types supported by the VPX6-684.

Table 1: Port Type Specification

Port Type	Specification
10Base-T	802.3 standard
	Automatic (MDI/MDIX) crossover
	EIA Category 3, 4, or 5 unshielded twisted pair cabling
	Maximum of 100 meters per segment length
100Base-TX	802.3u standard
	Automatic (MDI/MDIX) crossover
	EIA Category 5 unshielded twisted pair cabling
	Maximum of 100 meters per segment length
1000Base-T	802.3ab standard
	Automatic (MDI/MDIX) crossover
	EIA Category 5E unshielded twisted pair cabling
	Maximum of 100 meters per segment length
1000Base-SX	Front panel LC connectors or flexible pigtails with LC terminations that can be routed to the back
	Full duplex or simplex optics with separate Tx/Rx interfaces
	Multi-mode support
	Core/cladding: 62.5/125 or 50/125
	IEEE 802.3z
10GbE XAUI	Signaling supports 10GBASE-CX4
	IEEE 802.3ae

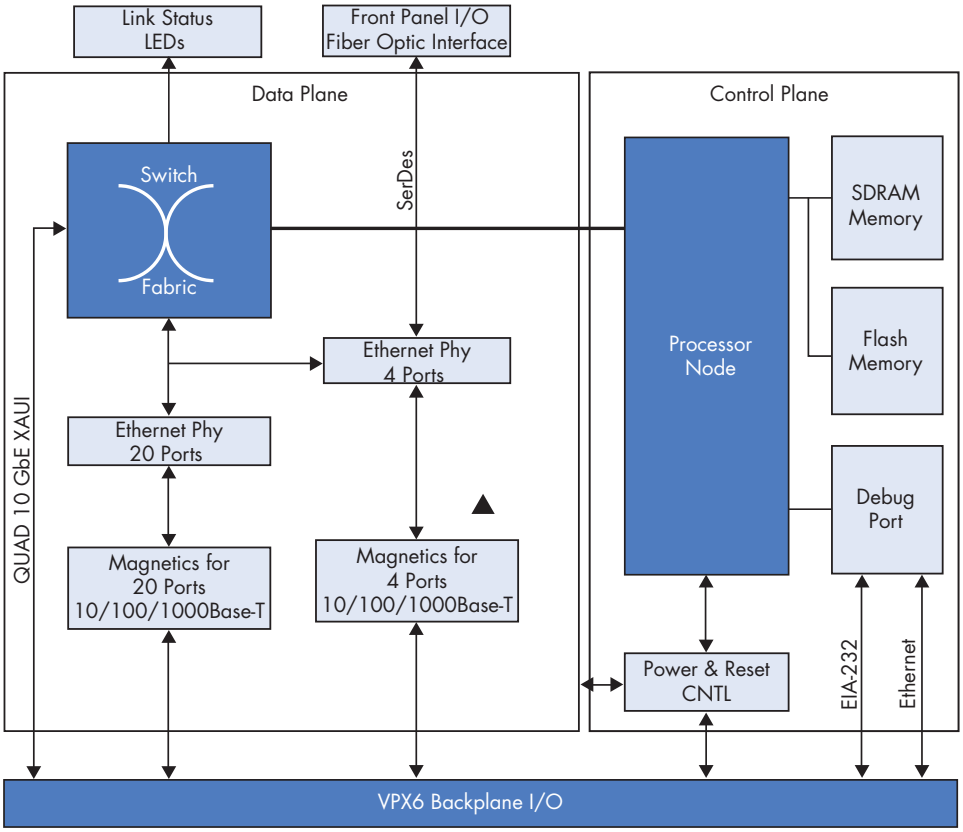
Other components of the VPX6-684 include an optional PMC-110 CryptoNet Security module, a Rear Transition Module (RTM) for easy RJ45 connectivity in the lab, and an LED front panel indicator for port status and activity.

Based on the Broadcom StrataXGS III multi-layer switch, the VPX6-684 FireBlade is capable of providing up to 24 10/100/1000 Mbps Ethernet ports with 64 million packets/second (line rate) aggregate switching capacity. The key features at the core of each Broadcom StrataXGS III that facilitate low latency wire-speed performance include 1 MB of high speed fully integrated on-chip packet buffer memory, Fast Filter Processors (FFP) per port, and advanced packet flow control capability per port. The four 10 GbE XAUI ports can be used to stack routers to enable higher port counts, or they can be used to create high speed 10 GbE backbones.

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Figure 1: VPX6-684 Hardware Block Diagram



Advanced Security

The VPX6-684 FireBlade can also be configured as a Unified Threat Management (UTM) router that is capable of strong perimeter defense through an ICSA certified firewall. This is achieved with the PMC-110 CryptoNet. This optional security PMC module provides an industrial strength stateful firewall that can protect against multiple evasive attacks.

VPX6-684 security features include:

- Stateful firewall (ICSA certified)
- Access control list (ACL) filtering
- Network Address Translation (NAT)
- Encryption/Decryption/Authentication
- Key generation/management
- VPN with secure tunneling (IPSec/L2TP)

The PMC-110 CryptoNet connects to the StrataXGS III multi-layer switch through 2 GbE interfaces and can be managed through a serial EIA-232 port.

Managed vs. Unmanaged Switches

Both managed and unmanaged versions of the VPX6-684 FireBlade are available. The unmanaged version functions only as a L2 switch with minimal software and a quick boot time. The managed version is a L2/L3 router with complete managed L2/L3 software, Quality of Service (QoS), IP multicasting, and basic security. Management interfaces include CLI, SNMP, and web for easy configuration and network management. (Refer to Table 2 for Management Interfaces and Connection Strategies.)

Systems Integrators can plug the VPX6-684 into their VITA 46 chassis switch slot and focus on architecting their network through one of may intuitive management interfaces.

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Table 2: Management Interfaces and Connection Strategies

Interface	Connection	Client
CLI	- EIA-232/485 - Any in-band Ethernet port	Terminal Program Telnet
Web	- Any in-band Ethernet port	Web Browser
Network Management Station (NMS)	- Any in-band Ethernet port	Standard off the shelf NMS Software

Complete Integrated Software Solution

Managed versions of the VPX6-684 FireBlade provide extensive pre-integrated software that runs on its processor. Major software components include the full suite of Layer 2/3 software protocols required for intelligent switching and routing of IP packets (Table 3). Curtiss-Wright also provides extra software features such as declassification, and Built-in Tests (BIT). BIT tests include Power BIT (PBIT), Continuous BIT (CBIT), and Initiated BIT (IBIT). Declassification is a utility that erases the non-essential contents in the Flash File System. This process deletes the routing tables, filters and purges the switch of Ethernet packets and restores default configuration files from flash. This provides an extra layer of memory protection, and the ability to recover default information in the event of corruption.

Accessories

For building networks in the lab environment, Curtiss-Wright provides a VPX6-684 FireBlade RTM that plugs into the backside of the VME64x backplane and provides up to 24 ports of RJ45 connectors, one 10/100 deug port, two EIA-232 serial interfaces and 4 ports of 10 GbE.

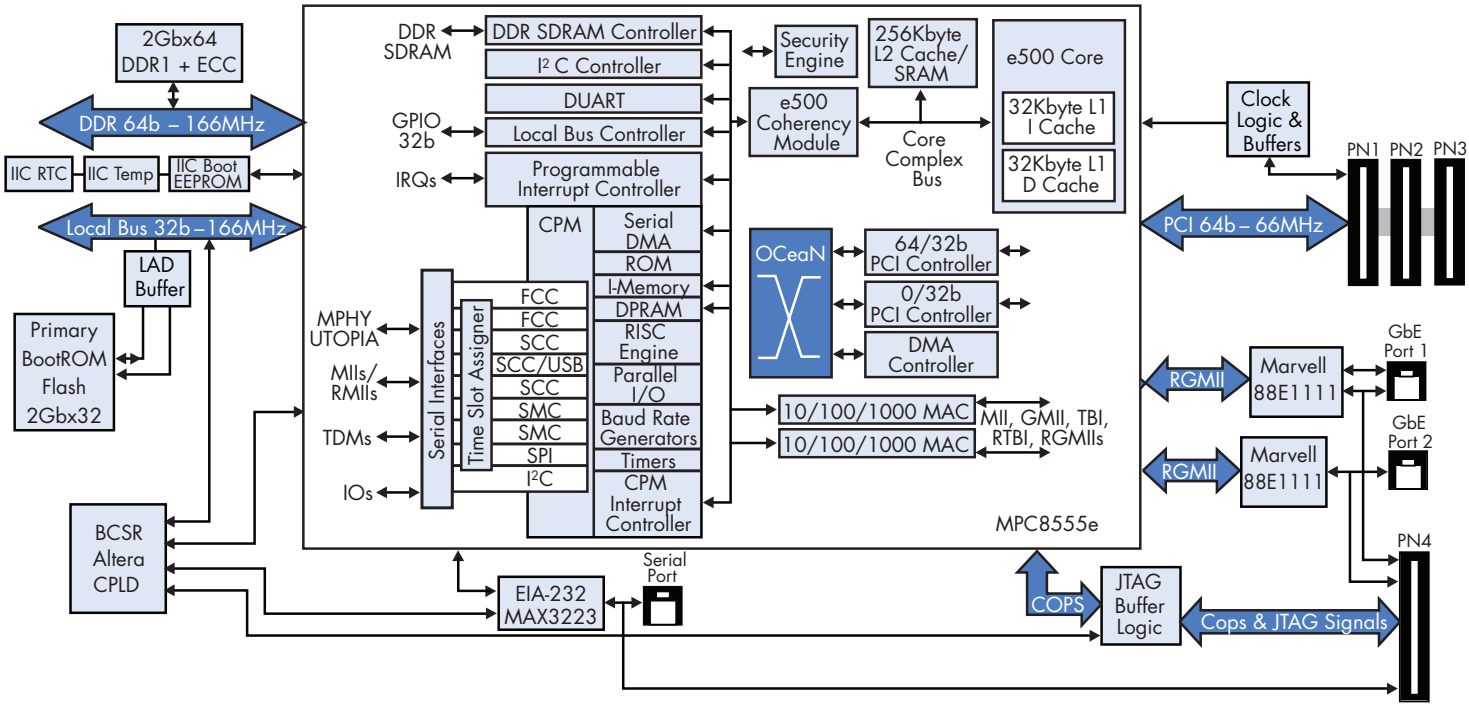
The VPX6-684 RTM can support the 12-, 20- or 24-port versions of the VPX6-684 FireBlade and provides four 10 GbE ports, two EIA-232/485 ports, one 10/100 RJ45 out-of-band debug port, and a reset switch. The EIA-232/485 port is multiplexed to communicate with either the MPC8245 processor on the basecard or the MPC8555E processor on the Security PMC.

An LED front panel indicator is included in all air-cooled versions of the VPX6-684 FireBlade cards. For conduction-cooled versions, the LED front panel mezzanine connects to the outside of the thermal frame and is sold separately.

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Figure 2: The Enhanced Security Software Block Diagram of PMC-110 CryptoNet Running on MPC8555E Processor



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Specifications

Table 3: Overall Feature Specifications

Feature	Specification
Number of Ports	Up to 24 1 GbE ports plus up to four 10 GbE ports (depending on variant purchased)
Out of Band Ports	100Base-TX Ethernet interface for software update
	JTAG support
	EIA-232 serial interface
Form Factor	Designed for convection- and conduction-cooled applications compliant to IEEE 1101.1 and IEEE 1101.2
	6U slot width: 0.8" slot pitch (variants without 2LM covers); 0.85" slot pitch (variants with 2LM covers)
Throughput	64 million packets/second aggregate switching capacity (24-port version)
Capacity	Packet Buffer 2 MB pool
	Support for jumbo packets up to 9KB
	Up to 16,384 Layer 2 MAC addresses
	Up to 4,096 Layer 3 IPv6 routes
	4,096 Virtual LANs supported
	1024 Layer 2 Multicast groups
	Content Aware Processor: 16 internal lookup processors; 4096 flows per processor
Layer 2 Features	Loop free, Transparent Bridging
	Rapid Spanning Tree Protocol (RSTP)
	Multiple Spanning Tree Protocol (MSTP)
	VLAN Routing and Support
	LAN information passing via GARP
	VLAN registration passing via GVRP
	Propagation of Multicast registration via GMRP
	Forwarding Multicast traffic using IGMP Snooping
	Increased Bandwidth and load sharing with Link Aggregation
	Port Mirroring
	Rate Limiting on each port
Layer 3 Features	Unicast routing protocols like RIP, BGP & OSPF
	Inter VLAN routing
	QoS, in the form of Differential services. Supports both: Differential Services Code Point DSCP mapping; Per Hop behavior
	Multicast route computation using PIM & DVMRP: SM - sparse mode DM - dense mode
	Redundancy and Load Sharing through VRRP
General Features	Support for DHCP Server / BOOTP server
	Switch Configuration Save and Restore
	Log file download via TFTP
	Management of Switch through: - SNMP - WebNM - CLI
	Secure management interfaces through secure http (SSL) and secure shell (SSH)
	RMON System probe for groups: - 1 Statistics - 2 History - 3 Alarm - 9 Events
	Power On Built-in Self Test

Table 4: Summary of Hardware Specifications

Feature	Description
Multi-layer switch	Broadcom StrataXGS III 565xx series
Management/Control Processor	Freescale Power Architecture MPC8245
Memory	- 256 MB SDRAM - 4 MB boot flash - 128 MB Flash File System Disk
1GbE Ports	Up to 24
10GbE Ports	Up to 4
Serial Ports	Up to 2 EIA-232
Debug Ports	100Base-TX Ethernet port, 1 JTAG connector
Reset Switch	On RTM or via backplane
LEDS	Status and activity for each port
Power	Maximum Power required from +5V supply: 45W
	Voltage Tolerance on +5V supply: - 4.875 to 5.25V tolerance - Less than 50 mV peak-to-peak noise
Form Factor	6U VPX
Environmental	Convection- or conduction-cooled Available in AC0, AC100, CC200, CC300 with 2LM (see Curtiss-Wright ruggedization tables)

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Table 5: Summary of Software Specifications

Specification	Description
Switching Solution	Single Broadcom StrataXGS III
Management/Control Processor	Freescale Power Architecture MPC8245
Memory	- 256 MB SDRAM - 4 MB boot flash - 128 MB Flash File System Disk
Ethernet Ports	Up to 24 ports (see Table 1)
Serial Port	2 Serial COM ports
Debug Port	- 100Base-TX Ethernet port - 1 JTAG connector
Physical Interfaces	Up to 6 BCM5464
Reset Switch	Switch resetable through backplane
LEDS	Status and activity for each port
Power	- 28W (12 ports) - 37W (20 ports) - 45W (24 ports) - 57W (24 ports + security)
Form Factor	6U VPX (160 mm x 233 mm)
Ruggedization	Conduction- or convection-cooled

Table 6: Weight

Ruggedization	Basecard Alone	Basecard with PMC
Air-cooled	785 g	893 g
Conduction-cooled	895 g	1003 g

Ruggedization Levels

VPX6-684-Axxxx card: Available in levels 0 and 100 (required airflow is 10cfm at sea level)

VPX6-684-Cxxxx card: Available in levels 200 and 300

Unless otherwise noted environmental tolerance is as defined in Curtiss-Wright's Ruggedization Guidelines factsheet.

Table 7: Recommended Variants

Part Number	Description
VPX6-684-A01028-M5	- Managed Router - 24 ports 1 GbE + 4 ports 10 GbE to rear - Layer 2/3 software - Air-cooled - L0, 0.8" pitch
VPX6-684-A01328-M5	- Managed Router - 20 ports 1 GbE + 4 ports 1 GbE optical + 4 ports 10 GbE to rear - Layer 2/3 software - Air-cooled - L0, 0.8" pitch
VPX6-684-A11020-M5	- Managed Router - 20 ports 1 GbE - Layer 2/3 software - Air-cooled - L100, 0.8" pitch
VPX6-684-C21028-M5	- Managed Router - 24 ports 1 GbE + 4 ports 10 GbE to rear - Layer 2/3 software - Conduction-cooled - L200, 0.8" pitch
RTM-684-0028	Rear Transition Module - Up to 24 GbE ports - Up to 4 10 GbE ports - 2 serial - Out of band 10/100 debug port - JTAG, Reset
MNT-684-0000	Yearly Software Maintenance

Note other variants are also available, please check with your local sales contact.

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Part Numbers and Ordering Information

Check with your local Curtiss-Wright representative for availability for specific part numbers.

VPX6 - 684 - uvwxyy - zzz

- zzz
  - U5: Unmanaged BCM 56xxx
  - M5: Managed BCM 56xxx
  - M5S: Managed BCM 56xxx + Security (PMC-110)
- uv
  - 12: 12xGbE ports
  - 28: 20xGbE ports + 4x1000Base-SX ports + 4x10 GbE ports
  - 28: 24xGbE ports + 4x10 GbE ports
- w
  - 0: All ports go to back
  - 3: 4 FO-SX – SX Fiber Optic
  - (out front – optic pig-tails can be routed to back)
- x: Mechanical Format
  - 1: 0.8" pitch, no 2-level maintenance support
  - 3: 0.85" pitch, 2-level maintenance support
- y: Temperature Range
  - 0: 0 to 50°C
  - 1: -40 to 71°C
  - 2: -40 to 85°C
- yy: Cooling Method
  - A: Air-cooled
  - C: Conduction-cooled
- 684: Model number
- VPX6: 6U VITA 46 and 48 form factor

Warranty

This product has a one year warranty.

Contact Information

To find your appropriate sales representative:

Website: www.curtisswrightds.com/sales

Email: ds@curtisswright.com

Technical Support

For technical support:

Website: www.cwcdefense.com/support

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