Connect Tech Inc.
Embedded Computing Experts

Product Name: Xtreme/GbE
Managed Carrier Ethernet Switch
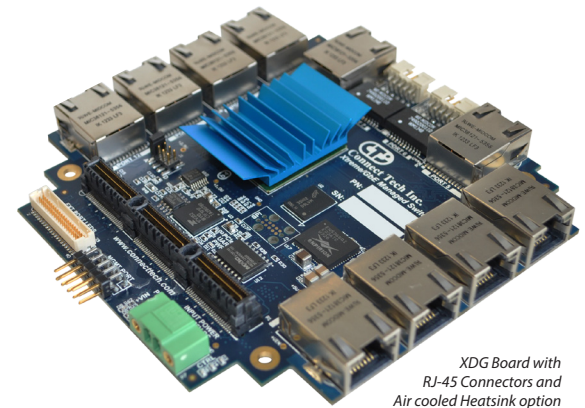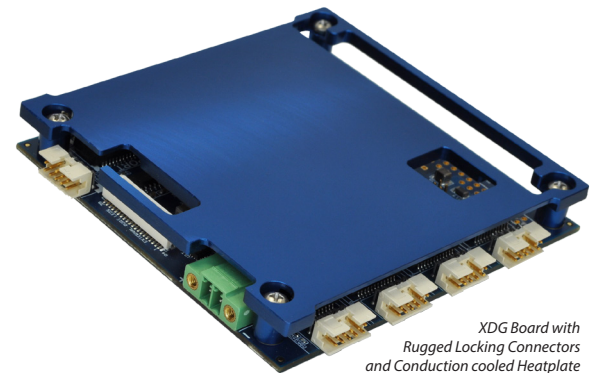**Part Numbers:** XDGXXX Series

Xtreme/GbE
Managed Carrier Ethernet Switch

Connect Tech's Xtreme/GbE Managed Carrier Ethernet Switch provides Carrier Grade Ethernet switching capabilities in an extremely small embedded form factor.

Excellent for high-end applications such as Mobile and Microwave backhaul, the Xtreme/GbE Managed Carrier Ethernet Switch is also a highly reliable way to communicate with 10/100/1000 devices in an embedded system. Powered by the latest generation Carrier Ethernet Switch engine the Vitesse 7428/7429. Its embedded 416 MHz MIPS 32-bit CPU, 1Gb DDR2 external memory and DMA-based frame extraction and insertion support timing over packet, Ethernet OAM, and performance monitoring.

Available in models with RJ-45 or Rugged Positive Locking Headers, making this embedded Ethernet switch ideal for any type of environment.

XDG Board with Rugged Locking Connectors and Conduction cooled Heatplate

XDG Board with RJ-45 Connectors and Air cooled Heatsink option

Hardware Specifications

Ethernet Switch Engine	**Vitesse VSC7428** Carrier Grade Ethernet Switch Chipset (XDG004-009) **Vitesse VSC7429** Carrier Grade Ethernet Switch Chipset (XDG010, XDG013) wA powerful embedded 416 MHz RISC 32-bit CPU, with DDR2 external memory and DMA-based frame extraction and insertion supports timing over packet, Ethernet OAM, and performance monitoring.
Memories	1Gb DDR2 SDRAM 128Mb Serial NOR Flash
Port Type	Gigabit ethernet (10/100/1000 Mbps)
Connectors	RJ-45's or Rugged Locking Pin Headers (see part numbers on page 2)
Layer 2 Switching	802.1Q VLAN switch with 8K MACs and 4K VLANs Push/pop up to two VLAN tags IPv4/IPv6 multicast Policing with storm control and MC/BC protection RSTP and MSTP support Hardware and software-based learning Link aggregation (IEEE 802.3ad) Independent and shared VLAN learning (IVL, SVL) Jumbo frame support
Management Access	Web Interface RS-232 Serial Interface (CLI) Software API PCIe/104 Bus
Indicator LEDs	2 LEDs per port (available on RJ-45 and through external connector) Power Rail LEDs Status LEDs
Standalone Operation	Switch can be used as a standalone unit OR it can be paired with an embedded SBC.
Input Voltage	Wide input rage: +9V to +36V DC with Reverse Polarity Protection Can be powered from external connector OR directly from expansion bus
Power Consumption	Idle: 0.3A, 3.6W Typical: 0.35A, 4.2W Max: 0.5A, 6W (with +12V input)
Bus Interface	No bus connector populated PC/104 bus pass through (for sourcing power only) PCIe/104 bus (sourcing power and management interface)
Dimensions	PC/104 compliant: 3.775" x 3.550" Tallest Top Side Component: Heatsink 0.375" (9.5mm)
Operating Temp	-40°C to +85°C (chipset rated to +125°C thermals)

FEATURES

✓ *Conduction cooled Heatplate or Air cooled Heatsink option*

✓ *8 or 12 Port 10/100/1000 Mbps Switch*

✓ *Web GUI or CLI Management*

✓ *Carrier Grade Ethernet Switching*

✓ *Available with RJ-45 or Rugged Locking connectors*

✓ *PC/104 Compliant: 4.550" x 4.393" or Smaller*

✓ *Extended Temperature Range -40°C to +85°C*

RoHS

Specifications subject to change without notice.

Xtreme/GbE
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Software Specifications

Port control	Port Speed/Duplex Mode/Flow Ctrl Port Frame Size (Jumbo frames) Port State (administrative status) Port Status (link monitoring) Port Statistics (MIB counters) Port VeriPHY (cable diagnostics)
QoS	Traffic Classes (8 active priorities) Port Default Priority QoS User Priority Input priority mapping QoS Control List (QCL Mode) Storm Control for UC, MC and BC Port policers Global/VCAP (ACL) policers Port egress shaper Queue egress shapers TRTCM (two rate three color market) Scheduler mode (Strict or Weighted Fair Queuing)
L2 Switching	Auto MAC addr. Learning/Ageing MAC Addresses – Static Virtual LAN Private VLAN – Static Port Isolation – Static IEEE-802.1ad Provider Bridge (Native or Translated VLAN) Rapid Spanning tree – RSTP, STP Loop Guard Link Aggregation – Static Link Aggregation – LACP IGMPv2 snooping Port Mirroring (Ingress and Egress Mirroring)
L3 Switching	IPv4 Unicast: RIPv1/RIPv2
Security	Port-Based 802.1X Multiple 802.1X Web & CLI Authentication ACLs for filtering/policing/port copy

Software Specifications Continued

Synchronization	SNTP & client
Power Saving	Cold start Cool start ActiPHY PerfectReach EEE Power Management LED Power Management Thermal Protection
Management	DHCP Client HTTP Server CLI - Console Port Industrial Standard CLI Industrial Standard Configuration Management access filtering HTTPS System Syslog Software Upload via web SNMP v1 / v2c / v3 Agent SNMP multiple trap destinations IEEE 802.1AB-2005 Link Layer Discovery – LLDP Configuration Download/Upload - XML Configuration Download/Upload - Industrial Standard Loop detection restore to default Symbolic Register Access
MIBs	RFC 1213 MIB II RFC 1215 TRAPS MIB RFC 4188 Bridge MIB RFC 3635 Ethernet-like MIB RFC 3411 SNMP Management Frameworks IEEE 802.1 MSTP MIB IEEE 802.1AB LLDP-MIB (LLDP MIB included in a clause of the STD) RFC 3621 LLDP-MED Power (POE) (No specific MIB for POE+ exists) Private MIB framework

RoHS

Part Number	GBE Port Count	GBE Connector Type	Thermal Solution	PC/104 Bus Connector Option
XDG004	8	RJ-45's	Air Cooled Heatsink	None
XDG005	8	RJ-45's	Air Cooled Heatsink	PC/104
XDG006	8	RJ-45's	Air Cooled Heatsink	PCIe/104
XDG007	8	Rugged Locking Pin Headers	Air Cooled Heatsink	None
XDG008	8	Rugged Locking Pin Headers	Air Cooled Heatsink	PC/104
XDG009	8	Rugged Locking Pin Headers	Air Cooled Heatsink	PCIe/104
XDG010	12	RJ-45's & Ruggd Locking Pin Headers	Air Cooled Heatsink	PCIe/104
XDG013	12	Rugged Locking Pin Headers	Air Cooled Heatsink	PCIe/104
XDG016	8	RJ-45's	Conduction Cooled Heatplate	None
XDG017	8	RJ-45's	Conduction Cooled Heatplate	PC/104
XDG018	8	RJ-45's	Conduction Cooled Heatplate	PCIe/104
XDG019	8	Rugged Locking Pin Headers	Conduction Cooled Heatplate	None
XDG020	8	Rugged Locking Pin Headers	Conduction Cooled Heatplate	PC/104
XDG021	8	Rugged Locking Pin Headers	Conduction Cooled Heatplate	PCIe/104
XDG022	12	RJ-45's & Ruggd Locking Pin Headers	Conduction Cooled Heatplate	PCIe/104
XDG023	12	Rugged Locking Pin Headers	Conduction Cooled Heatplate	PCIe/104

Part Number	Cable
CKG019	Ruggedized Cable Kit for XDG007/8/9
CKG029	Cable Kit for XDG010
CKG033	Ruggedized Cable Kit for XDG013

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