Connect Tech Inc.
Embedded Computing Experts

USERS GUIDE

Xtreme/GbE - Managed Carrier Ethernet Switch

CTIM-00429 Revision 0.14 2024-09-24

CONNECT TECH
www.connecttech.com
support@connecttech.com

CONNECT TECH INC. | 489 CLAIR RD. W., GUELPH, ON N1L 0H7 CANADA | TEL: +1.519.836.1291 | TOLL: 800.426.8979

Downloaded from Arrow.com.

TABLE OF CONTENTS

Table of Contents **2**

Preface **4**

Disclaimer 4
Customer Support Overview 4
Contact Information 4
Limited Product Warranty 5
Copyright Notice 5
Trademark Acknowledgment 5
ESD Warning 6

Revision History **6**

Introduction **8**

Product Features and Specifications 8
Part Numbers / Ordering Information 9

Product Overview **10**

Block Diagram 10
Connector Summary & Locations 11
8-Port RJ-45 Models 11
8-Port Rugged Latching Models 11
12-Port RJ-45 Models 12
12-Port Rugged Latching Models 12

Detailed Feature Description **13**

10/100/1000 Ethernet RJ-45 Connector 13
10/100/1000 Ethernet Rugged Latching Connector 14
External LED Connectors 14
IDC Serial Management Connector (RJ-45 Models) 15
Rugged Locking Serial Management Connector (Rugged Models) 16
System Jumper Block 17
PC/104 Connector 18
PCIe/104 Connector 19
Input Power Connector 19
On-board indicator LEDs (8-Port Models) 20
On-board indicator LEDs (12-Port Models) 20

CLI Management Interface **22**

CLI Access via External Serial Port 22
CLI Access via PCIe/104 Bus 22
CLI Basics 22
Complete CLI and Protocol Configuration Reference Guide 23

Downloaded from Arrow.com.

Web Management Interface **23**
Accessing the Web Management Interface 23
Web Management Interface Overview 25
Complete Web Protocol Configuration Reference Guide 25
Factory Default Configuration **26**
Hardware Usage Examples **26**
Instructions for Standalone Operation 26
Instructions for Installation in PCIe/104 Stack 26
Stacking Multiple Xtreme/GbE Boards to Achieve Higher Port Densities 27
Thermal Details **28**
XDG Thermal Parameters 28
Air Cooled Heatsinks 28
Conduction Cooled Heatplate 28
Mechanical Drawings & Models **29**
3D STEP Models 29
2D Dimension Drawings 29
8-Port RJ-45 Models 29
8-Port Rugged Model 30
12-Port RJ-45 Model 31
12-Port Rugged Model 31
Cables **32**
Cables Kits 32

Downloaded from Arrow.com.

PREFACE

Disclaimer

The information contained within this user's guide, including but not limited to any product specification, is subject to change without notice.

Connect Tech assumes no liability for any damages incurred directly or indirectly from any technical or typographical errors or omissions contained herein or for discrepancies between the product and the user's guide.

Customer Support Overview

If you experience difficulties after reading the manual and/or using the product, contact the Connect Tech reseller from which you purchased the product. In most cases the reseller can help you with product installation and difficulties.

In the event that the reseller is unable to resolve your problem, our highly qualified support staff can assist you. Our support section is available 24 hours a day, 7 days a week on our website at: http://connecttech.com/support/resource-center/. See the contact information section below for more information on how to contact us directly. Our technical support is always free.

Contact Information

Contact Information	
Mail/Courier	Connect Tech Inc. Technical Support 489 Clair Rd W Guelph, Ontario Canada N1L 0H7
Contact Information	sales@connecttech.com support@connecttech.com www.connecttech.com Toll Free: 800-426-8979 (North America only) Telephone: +1-519-836-1291 Facsimile: 519-836-4878 (on-line 24 hours)
Support	Please go to the Connect Tech Resource Center for product manuals, installation guides, device drivers, BSPs and technical tips. Submit your technical support questions to our support engineers. Technical Support representatives are available Monday through Friday, from 8:30 a.m. to 5:00 p.m. Eastern Standard Time.

Downloaded from Arrow.com.

Limited Product Warranty

Connect Tech Inc. provides a two-year Warranty for the Xtreme/GbE - Managed Carrier Ethernet Switch. Should this product, in Connect Tech Inc.'s opinion, fail to be in good working order during the warranty period, Connect Tech Inc. will, at its option, repair or replace this product at no charge, provided that the product has not been subjected to abuse, misuse, accident, disaster or non-Connect Tech Inc. authorized modification or repair.

You may obtain warranty service by delivering this product to an authorized Connect Tech Inc. business partner or to Connect Tech Inc. along with proof of purchase. Product returned to Connect Tech Inc. must be pre-authorized by Connect Tech Inc. with an RMA (Return Material Authorization) number marked on the outside of the package and sent prepaid, insured and packaged for safe shipment. Connect Tech Inc. will return this product by prepaid ground shipment service.

The Connect Tech Inc. Limited Warranty is only valid over the serviceable life of the product. This is defined as the period during which all components are available. Should the product prove to be irreparable, Connect Tech Inc. reserves the right to substitute an equivalent product if available or to retract the Warranty if no replacement is available.

The above warranty is the only warranty authorized by Connect Tech Inc. Under no circumstances will Connect Tech Inc. be liable in any way for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use of, or inability to use, such product.

Copyright Notice

The information contained in this document is subject to change without notice. Connect Tech Inc. shall not be liable for errors contained herein or for incidental consequential damages in connection with the furnishing, performance, or use of this material. This document contains proprietary information that is protected by copyright. All rights are reserved. No part of this document may be photocopied, reproduced, or translated to another language without the prior written consent of Connect Tech, Inc.

Copyright © 2024 by Connect Tech, Inc.

Trademark Acknowledgment

Connect Tech, Inc. acknowledges all trademarks, registered trademarks and/or copyrights referred to in this document as the property of their respective owners. Not listing all possible trademarks or copyright acknowledgments does not constitute a lack of acknowledgment to the rightful owners of the trademarks and copyrights mentioned in this document.

Downloaded from Arrow.com.

ESD Warning

Electronic components and circuits are sensitive to ElectroStatic Discharge (ESD). When handling any circuit board assemblies including Connect Tech COM Express carrier assemblies, it is recommended that ESD safety precautions be observed. ESD safe best practices include, but are not limited to:

- Leaving circuit boards in their antistatic packaging until they are ready to be installed.
- Using a grounded wrist strap when handling circuit boards, at a minimum you should touch a grounded metal object to dissipate any static charge that may be present on you.
- Only handling circuit boards in ESD safe areas, which may include ESD floor and table mats, wrist strap stations and ESD safe lab coats.
- Avoiding handling circuit boards in carpeted areas.
- Try to handle the board by the edges, avoiding contact with components.

REVISION HISTORY

Revision	Date	Changes
0.00	11/19/2013	Original
0.01	11/28/2013	Added Stacking Multiple Xtreme/GbE Section
0.02	01/09/2013	Corrected pinout of P2 for XDG007/8/9 Products
0.03	04/25/2014	Added XDG010 Information
0.04	09/01/2014	Corrected Cable Drawings
0.05	12/15/2015	Major Release Update: - Changed to CTI latest template - Updated all photos and connector call outs - Added additional CLI and Web Configuration info - Added Conduction Cooled Info
0.06	06/15/2016	- Revised Warranty Policy - Updated images
0.07	08/04/2017	Added cable drawing links, removed drawings from doc

Downloaded from Arrow.com.

0.08	08/09/2017	- Updated Rugged GBE Connector Part Number - Corrected Cable description for CBG127 - Corrected Power Consumption Part labeled
0.09	08/20/2019	Updated 12-Port RJ-45 Image
0.10	12/09/2020	Updated Format
0.11	01/05/2021	Updated Cover Image
0.12	07/31/2023	Updated Incorrect part numbers on Page #11
0.13	11/08/2023	Updated incorrect On-board indicator LEDs (12-Port Models) D3 and D4
0.14	09/24/2024	Updated Cable Kits information with CKG033

Downloaded from Arrow.com.

INTRODUCTION

Connect Tech's Xtreme/GbE Managed Carrier Ethernet Switch provides high density, high port count, Carrier Grade Ethernet switching capabilities in an extremely small embedded form factor. Excellent for any space constrained, mission-critical application needing an embedded high-density/high-port count managed Ethernet Switch.

Product Features and Specifications

Specifications	
Ethernet Switch Engine	Vitesse VSC7428 (8-port Models) / VSC7429 (12-Port Models) Carrier Grade Ethernet Switch Chipset A 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 (125MB) 128Mb Serial NOR Flash (16MB)
Ports	8 or 12 x Gigabit Ethernet (10/100/1000 Mbps)
Magnetics	On-board Gigabit Magnetics for all Ports (No external Magnetics required) Designed for Long-haul Gigabit Ethernet (10/100/1000 Mbps) applications
I/O Connectors	**Ethernet:** RJ-45 (8 or 12 Port Models), 2mm Pitch Locking Pin Headers (8 or 12 Port Models) **Power:** 3.5mm Pitch Terminal Block Header **Console:** 0.1" Pitch Header, 2mm Pitch Locking Pin Headers
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 CLI via RS-232 Software API SMNP

Downloaded from Arrow.com.

	PCIe/104 Bus (Option)
Indicator LEDs	2 LEDs per port 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	+9V to 36V Input Range (All Models) +12V only (Models with PCIe/104 Connector)
Power Consumption	**VSC7428:** Idle: 0.3A, 3.6W Typical: 0.35A, 4.2W Max: 0.5A, 6W (with +12V input) **VSC7429:** Idle: 0.4A, 4.8W Typical: 0.5A, 6W Max: 0.75A, 9W (with +12V input)
Expansion Bus Interface	PCIe/104 bus (optional - sourcing power and management interface)
Dimensions	8-Port: 3.775” x 3.550” 12-Port: 4.393” x 4.550” Tallest Top Side Component: Heatsink 0.375” (9.5mm) **Download 3D Model Here**
Weight	TBD
MTBF	TBD
Operating Temp	-40°C to +85°C (chipset rated to +125°C thermals)
Warranty and Support	Limited Two-Year Warranty and Free Technical Support

Part Numbers / Ordering Information

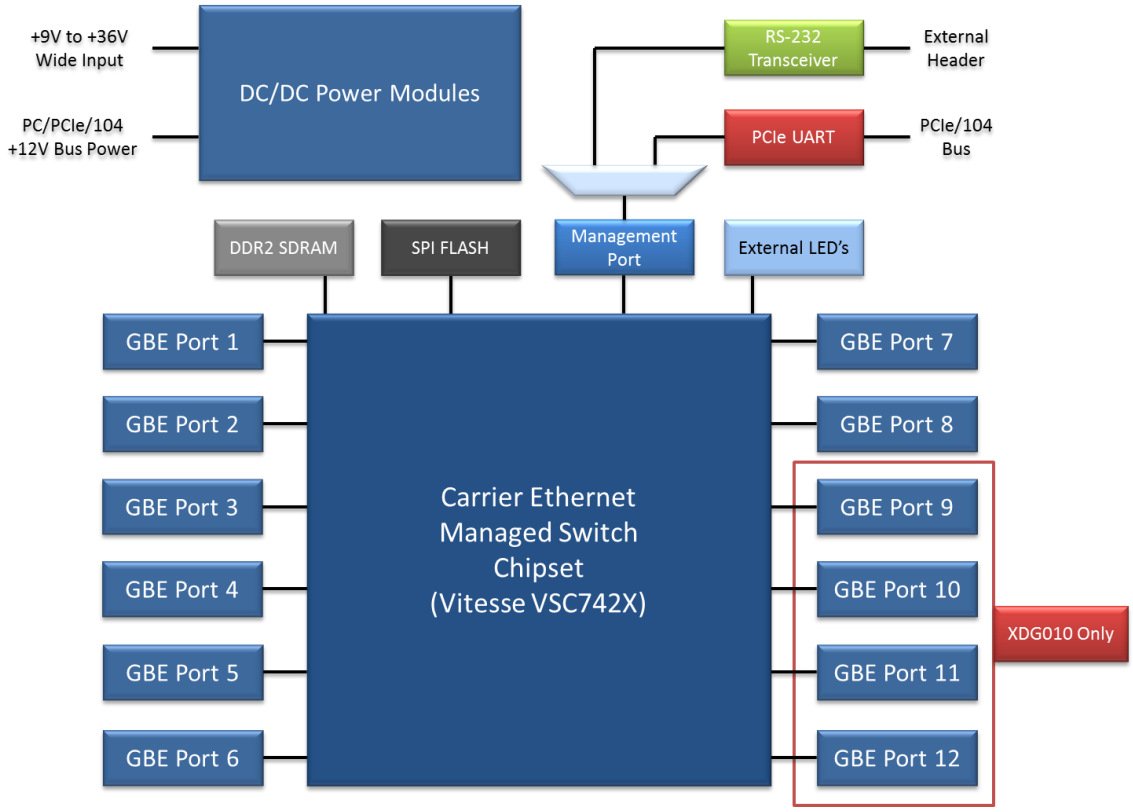
Part Number	GbE Ports	GbE Port Connector Type	Thermal Solution	Exp Bus Option
XDG004	8	RJ-45s	Air Cooled Heatsink	None
XDG005	8	RJ-45s	Air Cooled Heatsink	PC/104
XDG006	8	RJ-45s	Air Cooled Heatsink	PCIe/104
XDG007	8	Rugged Locking Pin Headers	Air Cooled Heatsink	None
XDG008	8	Rugged Locking Pin Headers	Air Cooled Heatsink	PC/104
XDG009	8	Rugged Locking Pin Headers	Air Cooled Heatsink	PCIe/104
XDG010	12	RJ-45s & Rugged Locking Pin Headers	Air Cooled Heatsink	PCIe/104
XDG012	12	RJ-45s & Rugged Locking Pin Headers	Air Cooled Heatsink	None
XDG013	12	Rugged Locking Pin Headers	Air Cooled Heatsink	PCIe/104
XDG016	8	RJ-45s	Conduction Cooled Heatplate	None

Downloaded from Arrow.com.

XDG017	8	RJ-45s	Conduction Cooled Heatplate	PC/104
XDG018	8	RJ-45s	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-45s & Rugged Locking Pin Headers	Conduction Cooled Heatplate	PCIe/104
XDG023	12	Rugged Locking Pin Headers	Conduction Cooled Heatplate	PCIe/104
XHG101	8 or 12 Port Conduction Cooled Heatplate (Standalone Item)			

PRODUCT OVERVIEW

Block Diagram

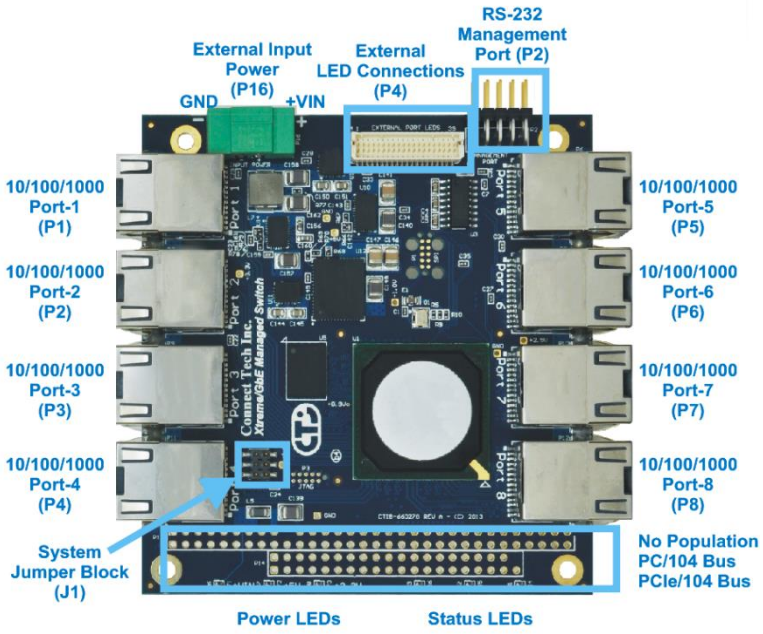


Downloaded from Arrow.com.

Connector Summary & Locations

8-Port RJ-45 Models

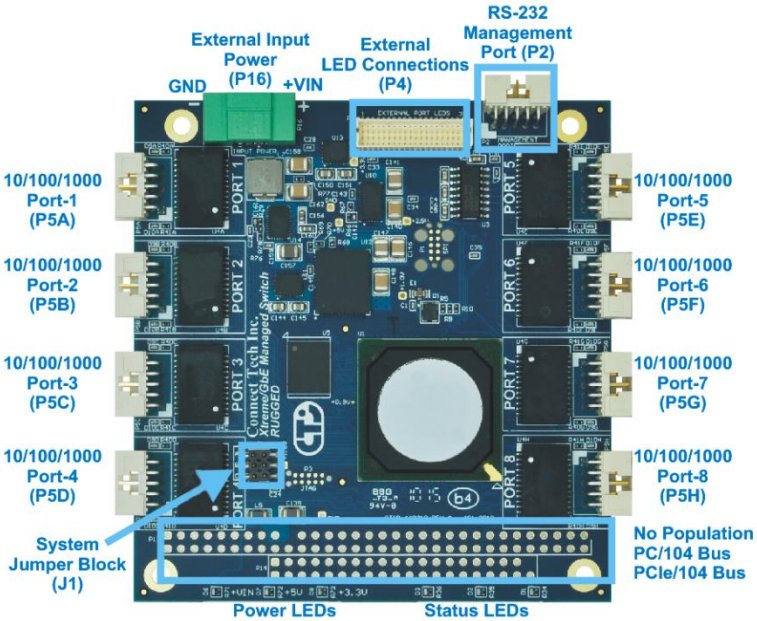
Part Numbers: XDG004, XDG005, XDG006, XDG016, XDG017, XDG018



8-Port Rugged Latching Models

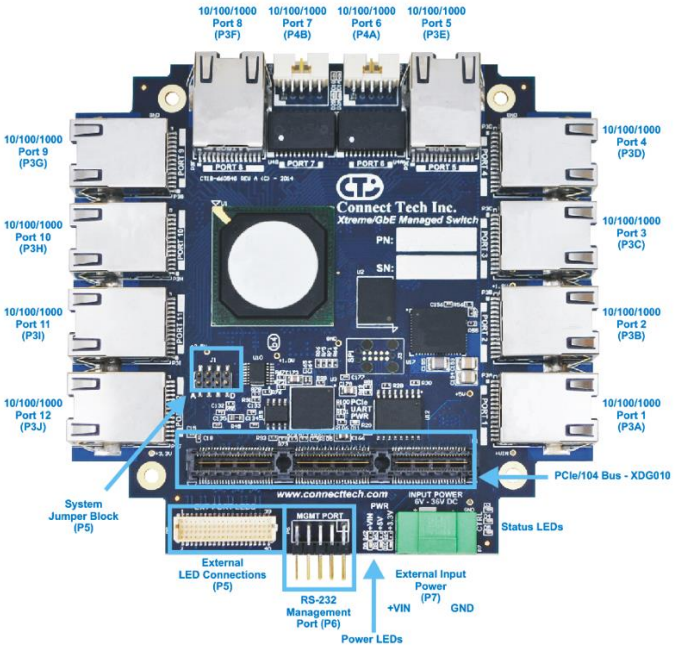
Part Numbers: XDG007, XDG008, XDG009, XDG019, XDG020, XDG021

Downloaded from Arrow.com.



12-Port RJ-45 Models

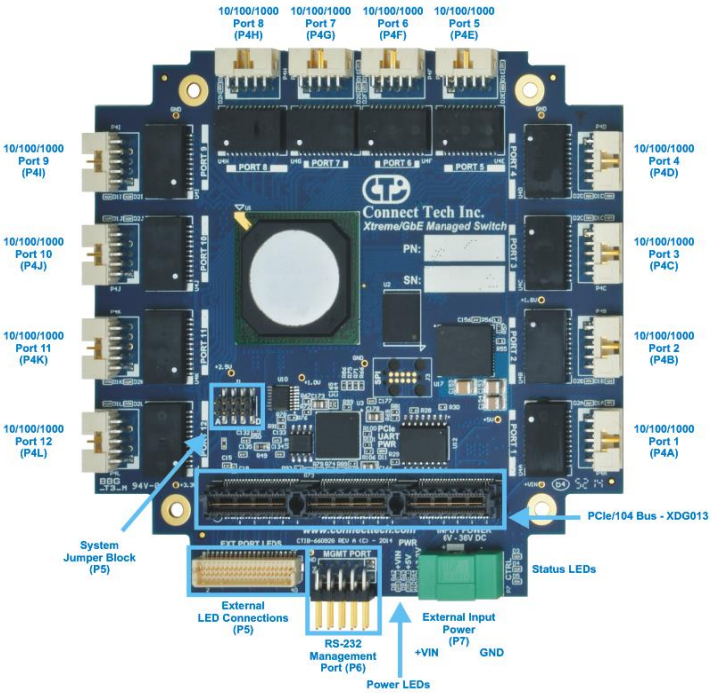
Part Numbers: XDG010, XDG012, XDG022



12-Port Rugged Latching Models

Part Numbers: XDG013, XDG023

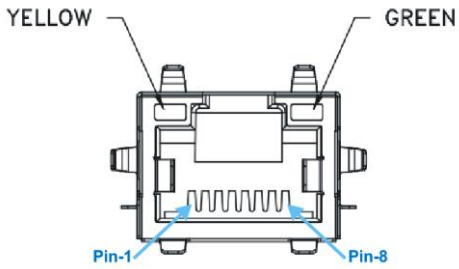
Downloaded from Arrow.com.



DETAILED FEATURE DESCRIPTION

10/100/1000 Ethernet RJ-45 Connector

Function	LAN Connector	
Locations	P1-P8 (XDG004/5/6) P3A-J (XDG010)	
XDG Connector PN	7498111120 - Manufacturer: Wurth	
Mating Connector PN	Standard Cat5e (8P8C RJ-45 Plug)	
Pinout	Pin	Signal
	1	MX1P
	2	MX1N
	3	MX2P
	6	MX2N
	4	MX3P
	5	MX3N
	7	MX4P



Green Only = 1Gbps
Green and Yellow = 100Mbps
Yellow Only = 10Mbps

Downloaded from Arrow.com.

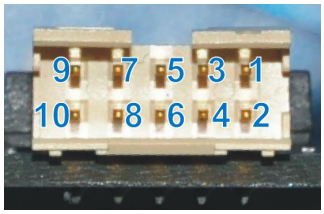
	8	MX4N	

10/100/1000 Ethernet Rugged Latching Connector

Function	LAN Connector		
Locations	P5A-H (XDG007/8/9) P4A-B (XDG010)		
XDG Connector PN	98464-G61-10ULF - Manufacturer: FCI		
Mating Connector PN	10073599-010LF - Manufacturer: FCI		
Pinout	Pin	Signal	Description
	1	MX1-	Ethernet Pair 1
	2	MX1+	Ethernet Pair 1
	3	MX2-	Ethernet Pair 2
	4	MX2+	Ethernet Pair 2
	5	SHELL	RJ Shell Connection
	6	SHELL	RJ Shell Connection
	7	MX3-	Ethernet Pair 3
	8	MX3+	Ethernet Pair 3
	9	MX4-	Ethernet Pair 4
	10	MX4+	Ethernet Pair 4

Top view

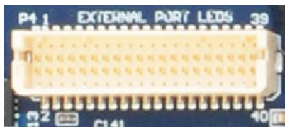
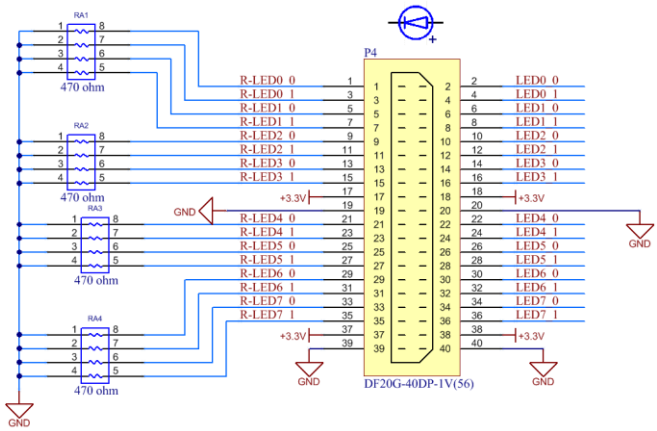
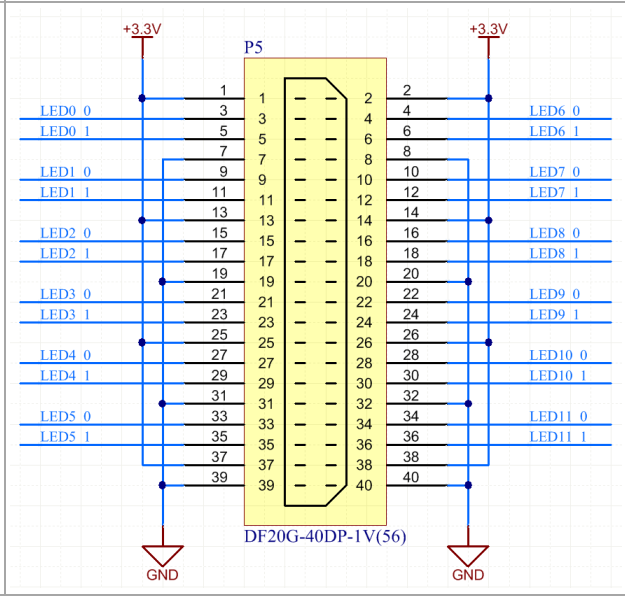
Side view looking at connector



External LED Connectors

Function	External Port LEDs
Locations	P4 (XDG004-009) P5 (XDG010)
XDG Connector PN	DF20G-40DP-1V(56) - Manufacturer: Hirose
Mating	DF20A-40DS-1C - Manufacturer: Hirose

Downloaded from Arrow.com.

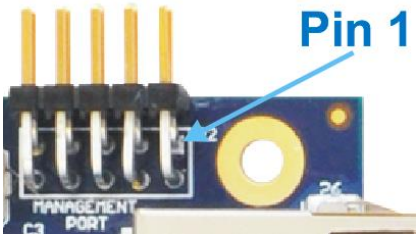
Connector PN		
Pinout (XDG004-009)		
Pinout (XDG010)		

IDC Serial Management Connector (RJ-45 Models)

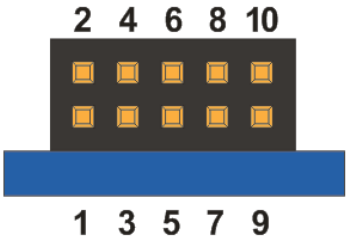
Function	Serial Management Connector	**Top view**
Locations	P2 (8-Port Models) P6 (12-Port Models)	
XDG Connector PN	TSW-105-08-L-D-RA - Manufacturer: Samtec	
Mating Connector PN	Any IDC 2x5 0.1” pitch female assembly.	

Downloaded from Arrow.com.

Pinout	Pin	Signal
	1	-
	2	-
	3	RX
	4	-
	5	TX
	6	-
	7	-
	8	-
	9	GND
	10	-



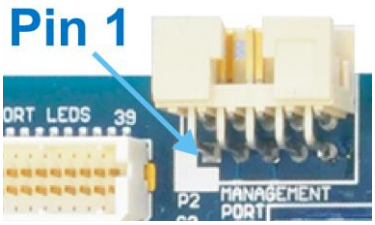
Side view looking at connector



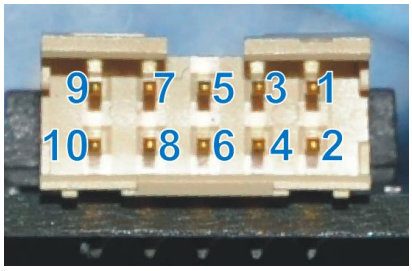
Rugged Locking Serial Management Connector (Rugged Models)

Function	Serial Management Connector	
Locations	P2	
XDG Connector PN	98464-G61-10ULF - Manufacturer: FCI	
Mating Connector PN	10073599-010LF - Manufacturer: FCI	
Pinout	Pin	Signal
	1	-
	2	RX
	3	TX
	4	-
	5	GND
	6	-
	7	-
	8	-
	9	-

Top view



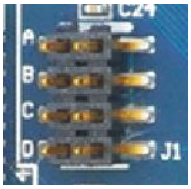
Side view looking at connector



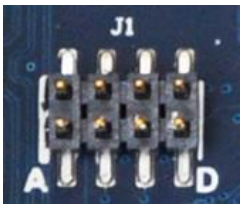
Downloaded from Arrow.com.

	10	-	

System Jumper Block

Function	System Jumper Block			
Locations	J1			
Type	2x3 (or 2x4) 2mm pitch Jumper Block			
Pinout (8-Port Models)	Pos	Signal Name	Description	
	A	RESET#	**JUMPER ON =** XDG goes into reset **JUMPER OFF =** XDG boots up normally *Note: A reset button can be installed on these pins*	
	B	TBD	No functionality at this time	
	C	UART Source Select *(Only present on XDG006 and XDG009)*	**JUMPER ON =** VSC7428 UART connects to PCIe/104 Bus **JUMPER OFF =** VSC7428 UART connects to External Management Port (P2)	
	D	TBD	No functionality at this time	
Pinout (12-Port Models)	Pos	Signal Name	Description	
	A	TBD	No functionality at this time	

Downloaded from Arrow.com.

	B	RESET#	**JUMPER ON =** XDG goes into reset **JUMPER OFF =** XDG boots up normally *Note: A reset button can be installed on these pins*	
	C	TBD	No functionality at this time	
	D	UART Source Select *(Only present on XDG006 and XDG009)*	**JUMPER ON =** VSC7428 UART connects to PCIe/104 Bus **JUMPER OFF =** VSC7428 UART connects to External Management Port (P2)	

PC/104 Connector

Function	PC/104 Connector	
Locations	P9, P10 (8-Port Models)	
Type	PC/104 Stacking Connector	
Pinout	Pinout compliant to PC/104 specification pinout. This connector is only used to source power for the board (+12V), all other pins will be pass-through. Visit http://www.pc104.org to download the specification free of charge.	 **** Shown uninstalled***

Downloaded from Arrow.com.

PCIe/104 Connector

Function	PCIe/104 Connector
Locations	P9 (8-Port Models) P1 (12-Port Models)
Type	PCIe/104 Stacking Connector
Pinout	Pinout compliant to PCIe/104 specification pinout v2.01. The Xtreme/GbE connects its management port to the x1 PCIe Link of the PCIe/104 bus (Type-1 or Type-2). The Xtreme/GbE also uses the +12V power rail from the PCIe/104 bus to power the board. Visit http://www.pc104.org to download the specification free of charge.

Input Power Connector

The Xtreme/GbE can be powered by EITHER an external 3.5mm pitch Phoenix style connector OR directly via the PC/104 or PCIe/104 bus.

- Powering via the Phoenix style connector is called *standalone mode*
- Powering via the PC/104 connector is called *bus mode*

Standalone Power Requirements

Minimum Voltage	+9 VDC
Maximum Voltage	+36 VDC

Bus Mode Power Requirements

Bus Connector	Voltage Rail used
PC/104	+12V
PCIe/104	+12V

External Input Power Connector Details

Function	Main Input Power *+9V to +36V: All Models*
Locations	P16 (8-Port Models) P7 (12-Port Models)
XDG Connector PN	1843790 - Manufacturer: Phoenix Contact
Mating	1847055 - Manufacturer: Phoenix

Downloaded from Arrow.com.

Connector PN	Contact		
Pinout	Pin	Signal	Description
	1	+VIN	Power In
	2	GND	Power Return

On-board indicator LEDs (8-Port Models)

LED	Function	Details
D1	Xtreme/GbE Main Status LED	Normal behavior = blinking every 1000ms Programming = blinking every 100ms Firmware Check Error = blinking every 100ms (with D2)
D2	Xtreme/GbE Error State LED	Error State = blinking every 500ms Fatal Error = LED stays ON permanently Firmware Check Error = blinking every 100ms (with D1)
D3	TBD	No Function at this time.
D6	Indicates +VIN voltage is ON	This is connected to the +VIN of the external input or the +12V of the PC/104 or PCIe/104 bus connectors.
D7	Indicates +5V voltage is ON	If ON this voltage has been successfully generated on board the XDG
D8	Indicates +3.3V voltage is ON	If ON this voltage has been successfully generated on board the XDG
D9	PCIe UART Power Good	If ON the PCIe UART (only available on PCIe/104 models) has properly powered its internal circuitry

On-board indicator LEDs (12-Port Models)

LED	Function	Details
D1	Gigabit Ethernet LED's	Rugged Positive Locking Header GbE LED (Operation similar to RJ-45 Green LED)
D2	Gigabit Ethernet LED's	Rugged Positive Locking Header GbE LED (Operation similar to RJ-45 Yellow LED)
D3	Xtreme/GbE Main Status LED	Normal behavior = blinking every 1000ms Programming = blinking every 100ms Firmware Check Error = blinking every 100ms (with D4)
D4	Xtreme/GbE Error State LED	Error State = blinking every 500ms Fatal Error = LED stays ON permanently Firmware Check Error = blinking every 100ms (with D3)
D5	TBD	No Function at this time.
D8	Indicates +VIN voltage is ON	This is connected to the +VIN of the external input or the +12V of the PC/104 or PCIe/104 bus connectors.

Downloaded from Arrow.com.

D9	Indicates +5V voltage is ON	If ON this voltage has been successfully generated on board the XDG
D10	Indicates +3.3V voltage is ON	If ON this voltage has been successfully generated on board the XDG
D11	PCIe UART Power Good	If ON the PCIe UART (only available on PCIe/104 models) has properly powered its internal circuitry

Downloaded from Arrow.com.

CLI MANAGEMENT INTERFACE

CLI Access via External Serial Port

To use the CLI management on the XDG you must connect to the RS-232 external management serial port. Only TX, RX and GND connections are needed for operation. You then must open the serial port in a terminal program such as: RealTerm, Putty, HyperTerminal, minicom, etc. The COM port must be set up to run with a baud rate of **115200, 8 data bits, 1 stop bit and no parity**.

Note: the XDG external serial port is compatible with RS-232 Input/Output Levels (NOT TTL or CMOS).

RS-232 Serial Parameter	Value
Baud Rate	115200 bps
Data Bits	8
Parity	None
Stop Bit	1
Output Voltage Swing	±4.2 V
Input Voltage Range	±15 V
Input Threshold Low	0.8 V
Input Threshold High	2.4 V

CLI Access via PCIe/104 Bus

The XDG product connects to the CLI management interface via the PCIe/104 bus. This serial port is generated from on-board PCIe UART the Exar 17V352. Ensure the DIP Switch position 2/B is ON if you want to access the CLI via the PCIe/104 bus.

Additional drivers will be needed to properly operate the additional serial port.
Drivers for this functionality can be found on Exar's website here:
http://www.exar.com/connectivity/uart-and-bridging-solutions/pcie-uarts/xr17v352

CLI Basics

Once opening the COM port attached to the management port, after boot up your terminal output should look like the output below. The **default login** is **admin** and **password** is **blank("")**. **So after typing admin** hit <ENTER> then hit <ENTER> again to login and "?" will display a list of the available commands.

Below is a list of common quick CLI commands. For a complete CLI reference please see the documents described below.

Common Task	CLI Command Syntax

Downloaded from Arrow.com.

What are the IP addresses used by my switch?	`show ip int br`
What ports are linked and at what speed?	`show int * status`
What software version is on my switch?	`show ver`
How do I save my configuration?	`copy running-config startup-config`

How do I setup my IP address for vlan1?	`conf t`
	`int vlan 1`
	`ip add xxx.xxx.xxx.xxx 255.255.255.0`
	`end`

Complete CLI and Protocol Configuration Reference Guide

The complete CLI and Protocol Configuration reference guide from Microsemi for the VSC7428/9 device can be **downloaded here**.

The following documents:
- AN1104-Software_Configuration_Guide_ICLI
- AN1115Layer2ProtocolConfigurationGuide
Will have the below mentioned copyright notice.

Copyright 2002-2015 Microsemi Corporation. All Rights Reserved. Unpublished rights reserved under the copyright laws of the United States of America, other countries and international treaties. Microsemi retains all ownership, copyright, trade secret and proprietary rights in the documentation.

WEB MANAGEMENT INTERFACE

The Xtreme/GbE Managed Carrier Ethernet Switch allows users to configure and monitor the device from any web enabled device. Below describes how to access this management interface as well as provides on overview on the web GUI itself.

Accessing the Web Management Interface

There are two ways to access the web interface for first time use.

Method #1 - Using the default shipping IP
This method DOES NOT require having access to the CLI interface. By default, the Xtreme/GbE will have an IP address of **192.168.42.1**, if you would like to connect to this address follow the steps below:

- Directly connect any port of Xtreme/GbE to your host PC using a standard Cat5e ethernet cable
- Setup your host PC's IP address to be on the same subnet as Xtreme/GbE (192.168.42.X)
- Open a web browser and go to the 192.168.42.1 address.
- Now you should see the login screen and from here you can setup the Xtreme/GbE to an IP address on your network.

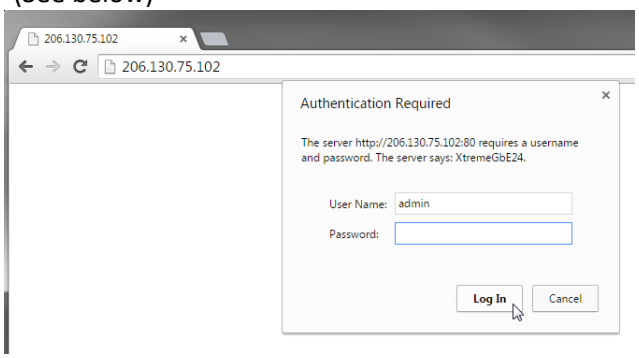
Method #2 – Changing the Xtreme/GbE IP to one on your network via the CLI
This method requires having access to the CLI interface through means of the external management serial port or the PCIe/104 bus

Downloaded from Arrow.com.

- Login to the CLI interface
- Type in the following commands
- configure terminal
- interface vlan 1
- ip address xxx.xxx.xxx.xxx 255.255.255.0
- end
- Now connect Xtreme/GbE to any place on your network.
- Once the system is up simply go to your specified address of xxx.xxx.xxx.xxx in a web browser of your choice and you will see the login screen for the web interface

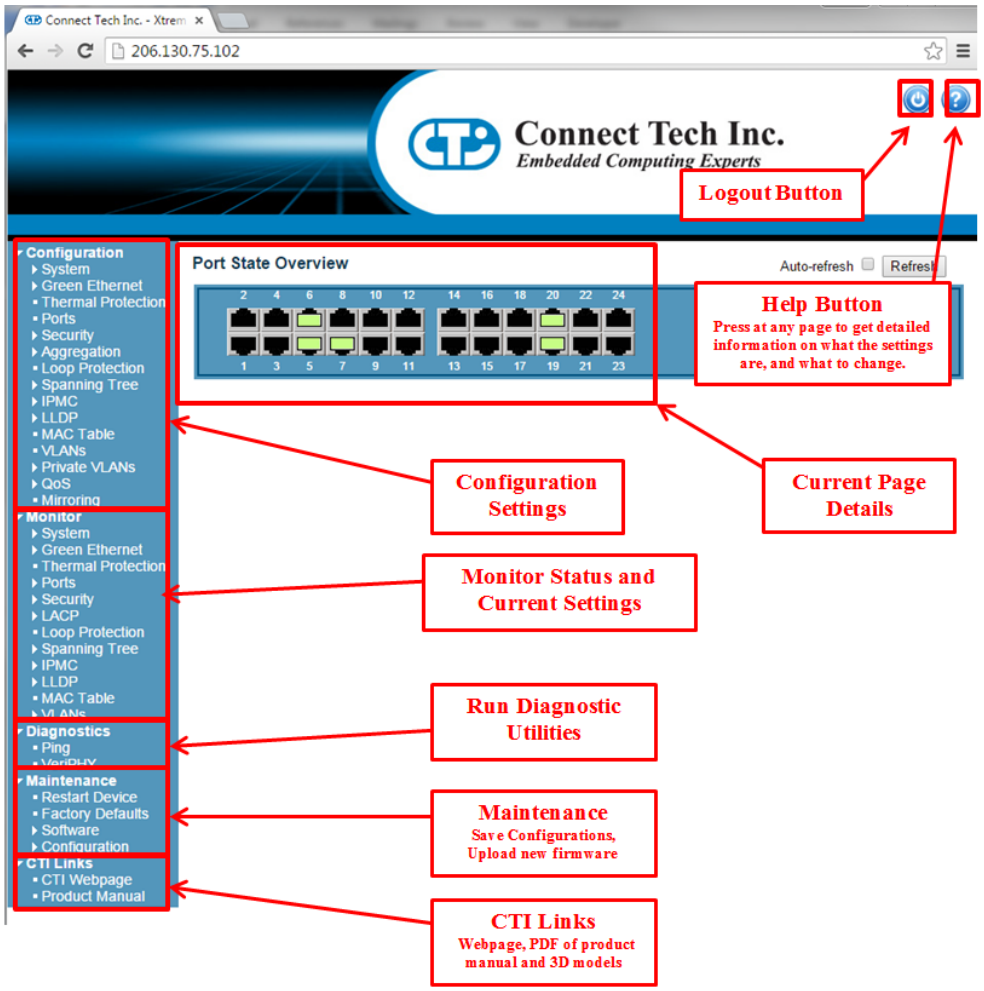
Login Screen of Web Management Interface

To login into the web management interface, the default login is **admin** and the password is blank. (See below)



Downloaded from Arrow.com.

Web Management Interface Overview



Complete Web Protocol Configuration Reference Guide

As mentioned in the CLI section, the complete Protocol Configuration reference guide from Microsemi for the VSC7429 device can be **downloaded here**. It will have CLI and Web configuration methods listed.

The following document:
- AN1115Layer2ProtocolConfigurationGuide
Will have the below mentioned copyright notice.

Copyright 2002-2015 Microsemi Corporation. All Rights Reserved. Unpublished rights reserved under the copyright laws of the United States of America, other countries and international treaties. Microsemi retains all ownership, copyright, trade secret and proprietary rights in the documentation.

Downloaded from Arrow.com.

FACTORY DEFAULT CONFIGURATION

The factory default configuration is a VLAN unaware L2 switch with automatic learning/ageing and auto negotiation enabled on all ports:

- System: The system name string is empty.
- Console: The password string is empty and inactivity timeout is disabled. The prompt is “#”.
- Port: All ports are enabled for auto negotiation and flow control is disabled. Max frame size is 9600.
- MAC table: The table is empty, auto learning and ageing is enabled. The ageing timer is 300 seconds.
- VLAN: Only VLAN 1 is present in the table and includes all ports. All ports are VLAN unaware with Port VLAN ID 1. All ports accept all frame types.
- User Groups: User group 1 exists and includes all ports.
- QoS: If supported, IP ToS Precedence priority is enabled and all Precedence values are given high priority, otherwise port mode is enabled. VLAN tag priorities will be set according to 802.1p. The UDP/TCP port list is empty. Default priority is high. Default user priority is 0. L4 default priority and match priority are low. All shaper and policers are disabled.
- Mirror: Mirroring is disabled.
- IP: IP mode is enabled and the default IP address is **192.168.42.1**
- IP: DHCP mode is disabled.
- SNMP: SNMP is enabled. Traps are disabled.
- Dot1X: 802.1X is disabled. All ports set to “Force Authorized”

HARDWARE USAGE EXAMPLES

Instructions for Standalone Operation

1. Ensure all external system power supplies are off.
2. Plug in external power into the external input power connector.
3. Ensure voltage is in the range of +9V to +36V
4. Turn on external power supply
5. XDG will now boot up
6. Plug in all Ethernet cables to XDG and begin setup operation and use.

Instructions for Installation in PCIe/104 Stack

1. Ensure all external system power supplies are off.
2. Plug XDG board onto PCIe/104 stack (top or bottom stacking)
3. Ensure that the PCIe/104 bus will supply +12V over the bus connector
4. Turn on the PCIe/104 system
5. XDG will now boot up
6. Plug in all Ethernet cables to XDG and begin setup operation and use.

Downloaded from Arrow.com.

Stacking Multiple Xtreme/GbE Boards to Achieve Higher Port Densities

Due to the stacking nature of the PC/104 and PCIe/104 for factor board, the Xtreme/GbE can easily be stacked with other XDGs to achieve higher switch port densities. Some simple topology examples are listed below to achieve 7 downstream ports with one XDG, 13 downstream ports with two XDG's and 20 downstream ports with 3 XDG's. This pattern will continue when stacking 4 or more XDGs.

1 x XDG = 7 Downstream Ports

Main Uplink	UL1
XDG#1 - GBE Port1	UL2
XDG#1 - GBE Port2	DS1
XDG#1 - GBE Port3	DS2
XDG#1 - GBE Port4	DS3
XDG#1 - GBE Port5	DS4
XDG#1 - GBE Port6	DS5
XDG#1 - GBE Port7	DS6
XDG#1 - GBE Port8	DS7

2 x XDGs = 13 Downstream Ports

Main Uplink	UL1
XDG#1 - GBE Port1	UL1
XDG#1 - GBE Port2	DS1
XDG#1 - GBE Port3	DS2
XDG#1 - GBE Port4	DS3
XDG#1 - GBE Port5	DS4
XDG#1 - GBE Port6	DS5
XDG#1 - GBE Port7	DS6
XDG#1 - GBE Port8	UL2
XDG#2 - GBE Port1	UL2
XDG#2 - GBE Port2	DS7
XDG#2 - GBE Port3	DS8
XDG#2 - GBE Port4	DS9
XDG#2 - GBE Port5	DS10
XDG#2 - GBE Port6	DS11
XDG#2 - GBE Port7	DS12
XDG#2 - GBE Port8	DS13

3 x XDGs = 20 Downstream Ports

Main Uplink	UL1
XDG#1 - GBE Port1	UL1
XDG#1 - GBE Port2	DS1
XDG#1 - GBE Port3	DS2
XDG#1 - GBE Port4	DS3
XDG#1 - GBE Port5	DS4
XDG#1 - GBE Port6	DS5
XDG#1 - GBE Port7	DS6
XDG#1 - GBE Port8	UL2
XDG#2 - GBE Port1	UL2
XDG#2 - GBE Port2	DS7
XDG#2 - GBE Port3	DS8
XDG#2 - GBE Port4	DS9
XDG#2 - GBE Port5	DS10
XDG#2 - GBE Port6	DS11
XDG#2 - GBE Port7	DS12
XDG#2 - GBE Port8	UL3
XDG#3 - GBE Port1	UL3
XDG#3 - GBE Port2	DS14
XDG#3 - GBE Port3	DS15
XDG#3 - GBE Port4	DS16
XDG#3 - GBE Port5	DS17
XDG#3 - GBE Port6	DS18
XDG#3 - GBE Port7	DS19
XDG#3 - GBE Port8	DS20

Downloaded from Arrow.com.

THERMAL DETAILS

XDG Thermal Parameters

Thermal Parameter	Value
Minimum Ambient Operating Temperature	-40 °C
Maximum Operating Junction Temperature	125 °C
Recommended XDG TDP	8W
Die junction to package case top	3.27 °C/W
Die junction to PCB	6.03 °C/W
Die junction to Ambient	12.14 °C/W
Die junction to moving air @ 1 m/s	9.42 °C/W

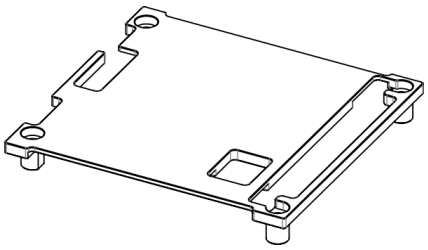
Air Cooled Heatsinks

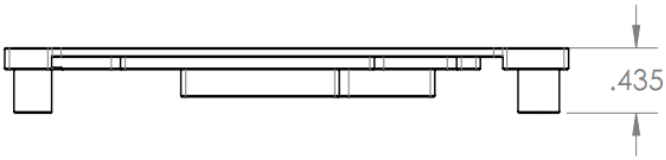
All air-cooled models of the XDG ship with a black anodized 28x28x6.35mm Heatsink.

Part Number: 658-25ABT3
Manufacture: Wakefield-Vette
Thermal Resistance @ Forced Air Flow: 5°C/W @ 500 LFM

Conduction Cooled Heatplate

All conduction cooled models of the XDG ship with the **XHG101** heatplate. This heatplate has an outer dimensions that are equal to the PC/104 form factor of 3.775” x 3.550”, with a height of 0.435”.





Detailed Mechanical Drawings upon request: support@connecttech.com

Downloaded from Arrow.com.

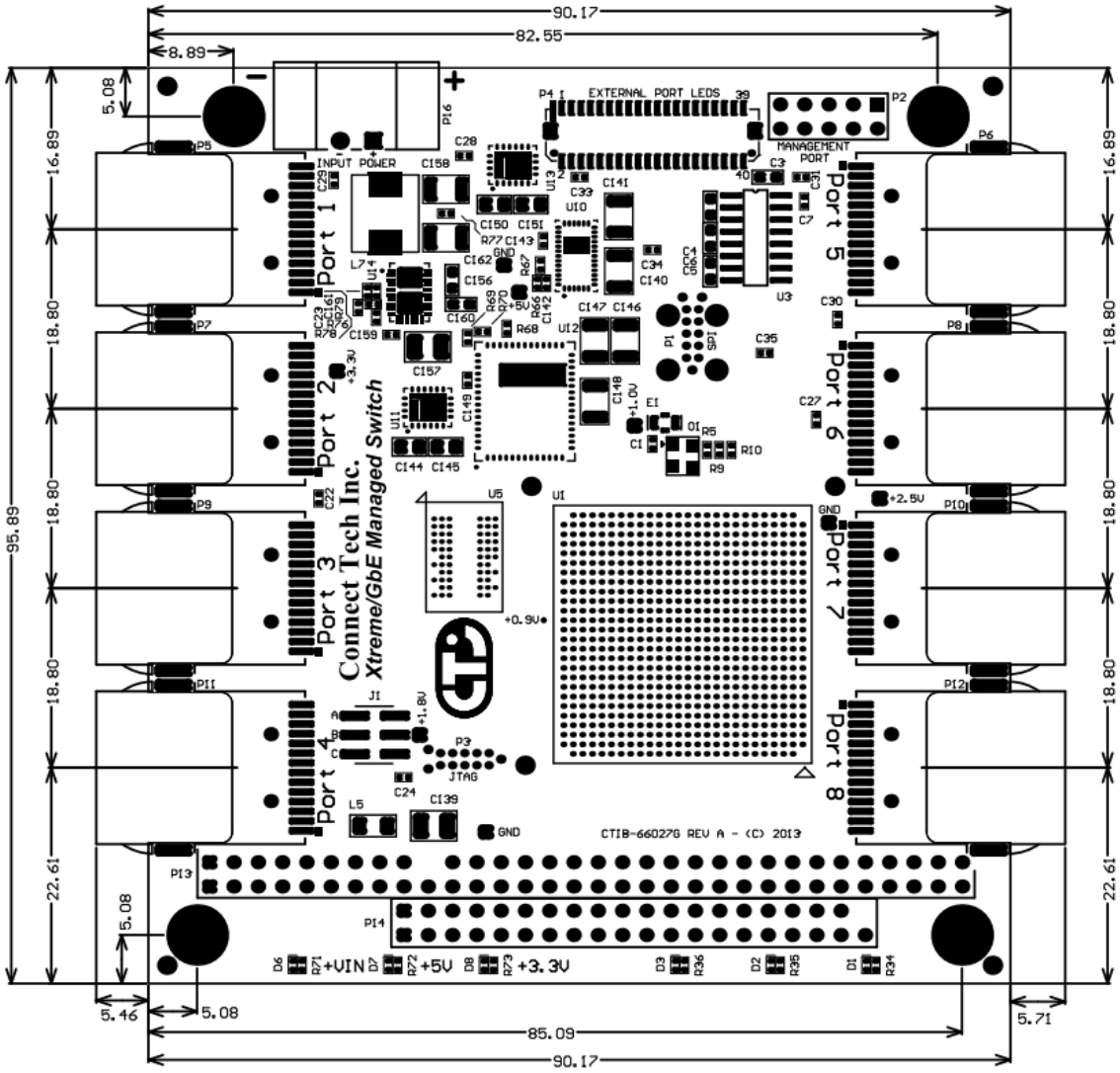
MECHANICAL DRAWINGS & MODELS

3D STEP Models

A complete **3D STEP Model** file of COM Express Type 6 104e Carrier can be downloaded here:
https://www.connecttech.com/ftp/3d_models/XDG-Gen2_3D_MODEL.zip

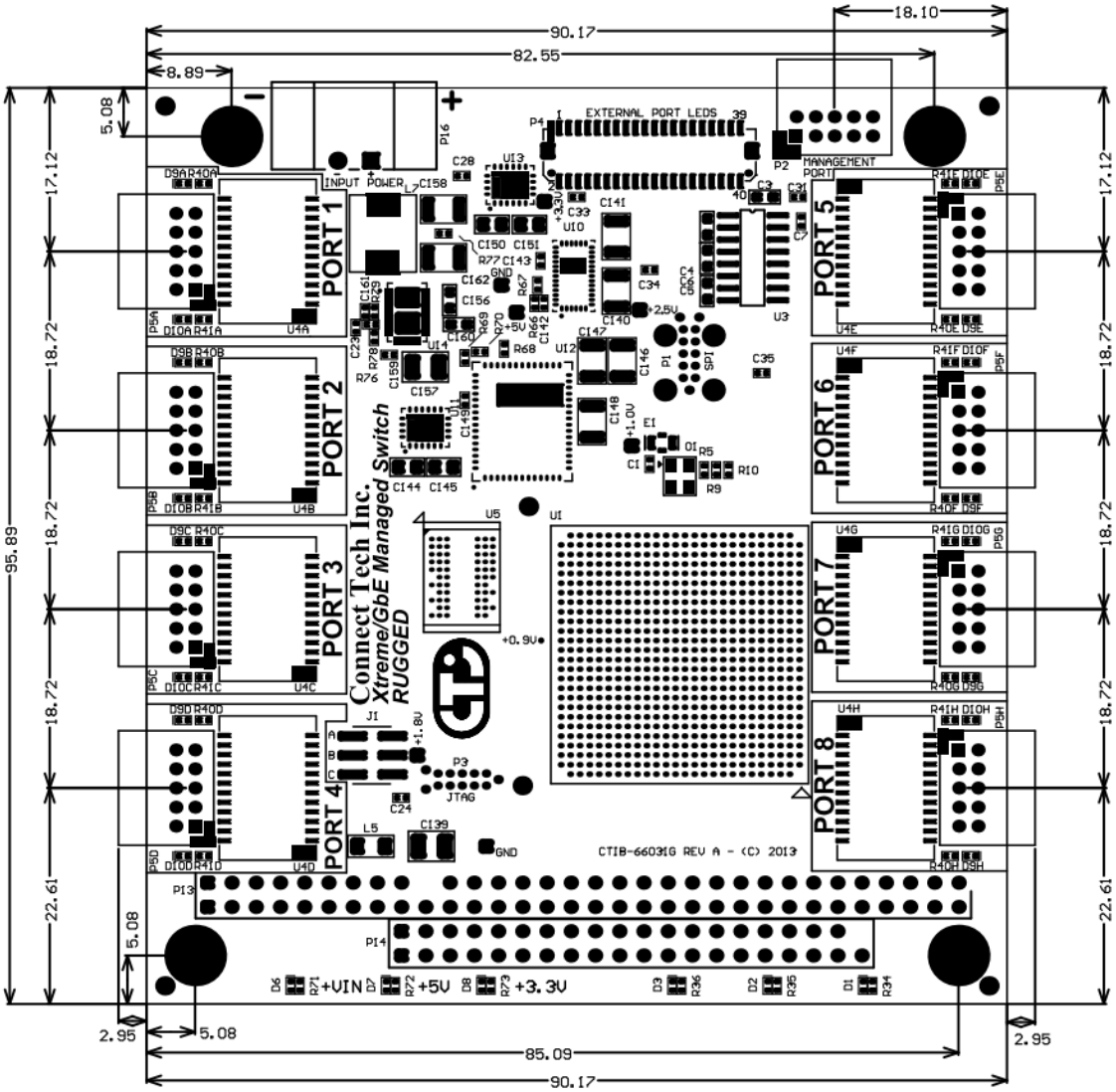
2D Dimension Drawings

8-Port RJ-45 Models



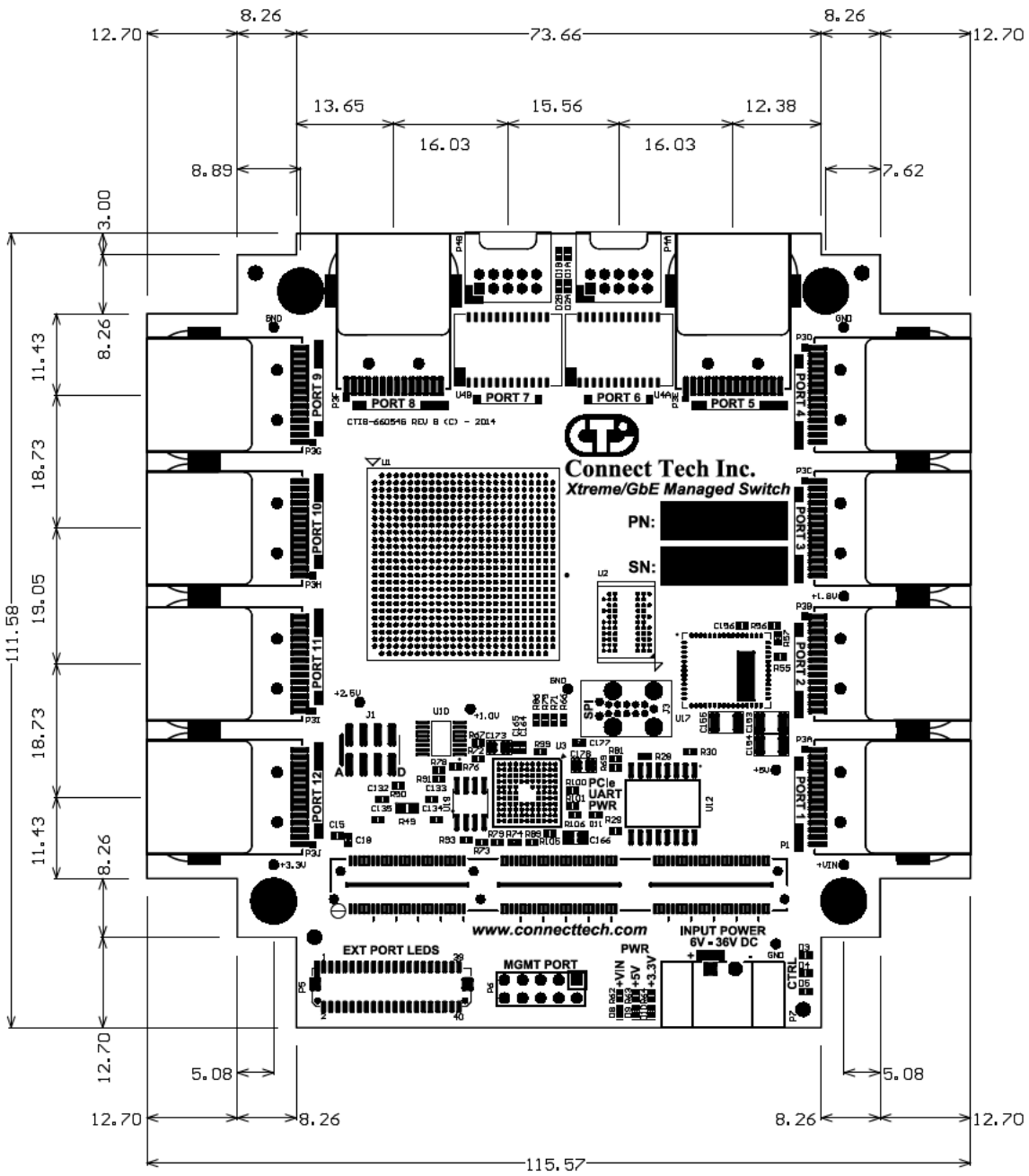
Downloaded from Arrow.com.

8-Port Rugged Model



Downloaded from Arrow.com.

12-Port RJ-45 Model



12-Port Rugged Model

Drawing TBD.

Downloaded from Arrow.com.

CABLES

The Xtreme/GbE Managed Carrier Ethernet Switch has following cable options available.

Drawing No.	Part No.	Description
CTIC-00048	CAG104	2x5 0.1” IDC to DB-9 cable
CTIC-00433	CBG117	RJ-45 panel mount to 10-pin MiniTek
CTIC-00388	CBG127	DB9 panel mount to 10-pin MiniTek
OEM	P115-012	RJ-45 panel mount to RJ-45 Male Plug

Cables Kits

Cable kits can also be ordered to include everything needed for your specific XDG model. See Connector Summary & Locations section for additional information on the number of ports a given XDG model has.

CKG012: 8 x P115-012
CKG019: 8x CBG117, 1 x CBG127 8 port rugged latching models
CKG029: 2x CBG117, 1 x CAG104 2 port rugged latching models
CKG033: 12x CBG117, 1 x CAG104 12 port rugged latching models

Downloaded from Arrow.com.