ECM-9958 10G-XFI Ready Conversion Module

Dawn VME Products®

*Another Performance Design from the Team at Dawn*

# SERDES Ethernet to Base-T Conversion module

## Features:

**2 Hardware Options:**

- **VPX Meritec Cable Module (Odd or Even)**
- **Daughter Card for Host board**

  **(Air or Conduction cooled)**

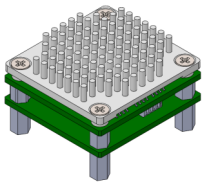
  **(Optional Conformal coat)**

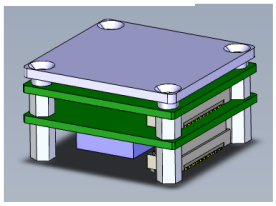
**3 Firmware Options for SERDES to xBase-T:**

- **10G-XFI to 10GBase-T**
- **1GBase-KX to 1000Base-T**
- **SGMII to 1000Base-T**

**Low Power 2.7W (Typical for 30 meters of CAT 6 cable)**

**IEEE® 802.3-2012 compliant auto-negotiation**





## Overview

The **issue** is backplane (SERDES) type communication standards (such as 10G-XFI, 1G Base-KX, and 1G-SGMII ) are designed for short distance high speed communication between slots on a Backplane and are not compatible with Commercial RJ45 (Base-T) networking standards.

Rugged computing customers frequently have SERDES ports on their CPU or Network Switch cards that need conversion to a commercial Base-T compatible standard like 10GBase-T or 1GBase-T.

The solution to bridge this gap is Dawn's new ECM-9958 product line. The ECM-9958 is available in Meritec Cable version for direct VPX RTM interface or Daughter card version for use on Customer Host application board.

## Specifications

### Mechanical

**Daughter card module set:**

34mm x 36mm x 20mm (with thermal plate)

**VPX ( Meritec Cable ) Standalone Module**

46mm x 68mm x 33mm (with heat sink)

(3D models available for integration into customer system)

### Temperature Operation

- -40C to +85C

### Interface

**Daughter card version :**

- Samtec P/N QSH-020-01-L-D-DP-A

**VPX Standalone Module :**

- RJ45 (CAT6) socket connector
- VPX Meritec (Odd or Even) RTM Cable
- Power / Reset Cable (+3.3V & Reset)

**Power Requirements:**

- +3.3V @ 1 Amp

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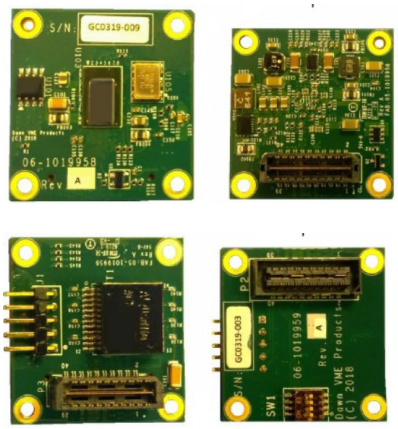
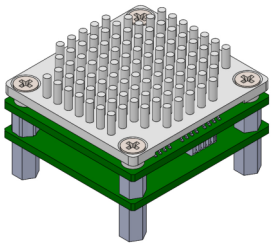
# Product Images:

**Standalone VPX module with Meritec Cable**

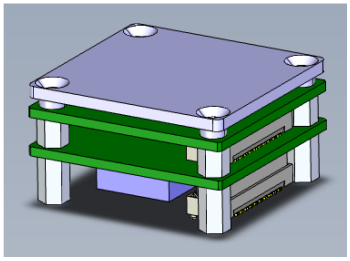
**Daughter Card Module board**

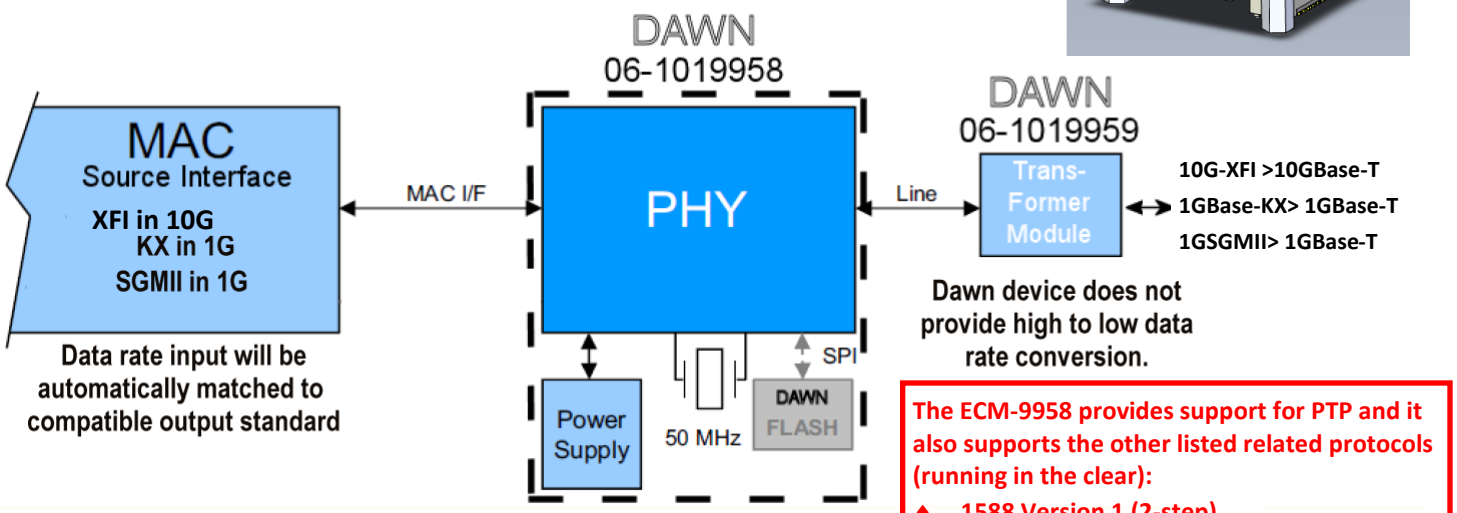


**Daughter card Assm. (Air cooled)**



**Daughter card Assm. (Cond. Cooled)**

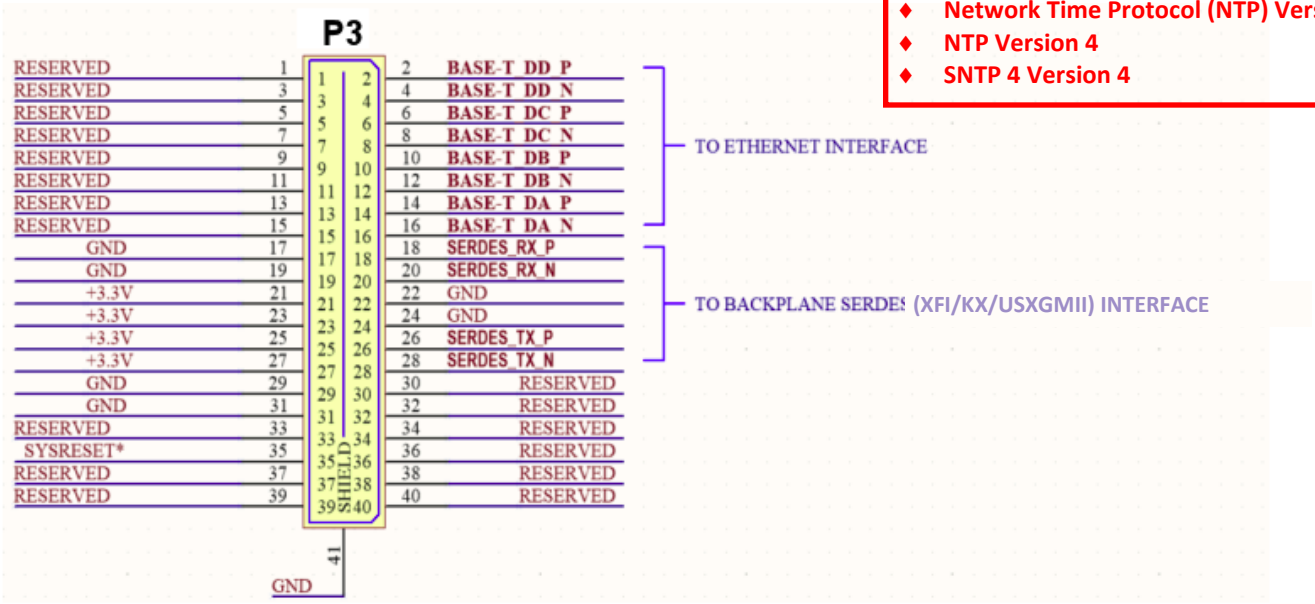





**The ECM-9958 provides support for PTP and it also supports the other listed related protocols (running in the clear):**

- **1588 Version 1 (2-step)**
- **1588 Version 2 (2-step)**
- **Network Time Protocol (NTP) Version 3**
- **NTP Version 4**
- **SNTP 4 Version 4**

Daughter Card Interface connector pinout

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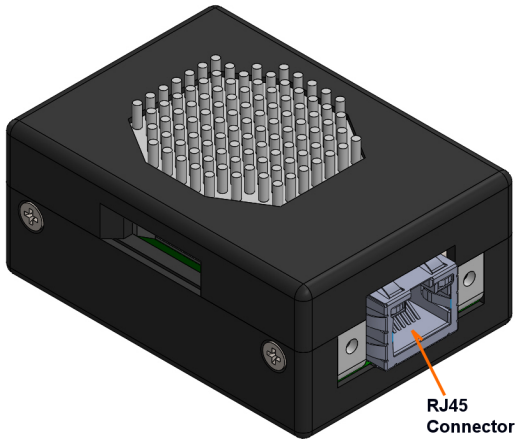
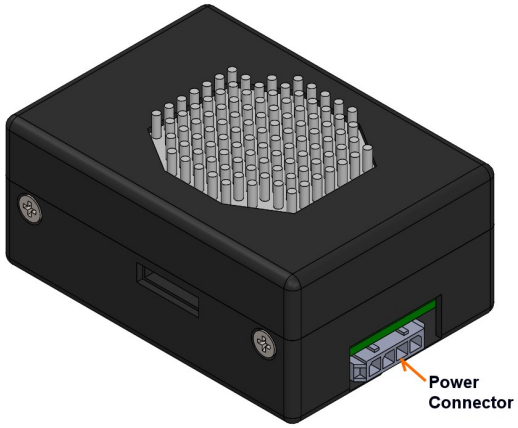
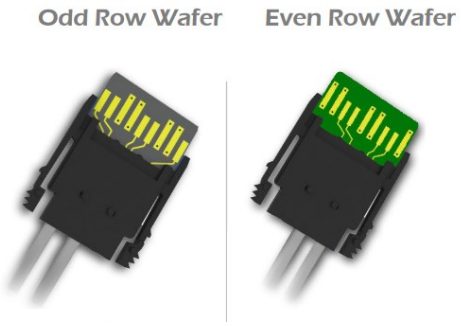
**The Base-T Side of the unit provides an RJ45 (industry standard) connector. (as shown in the image below).**



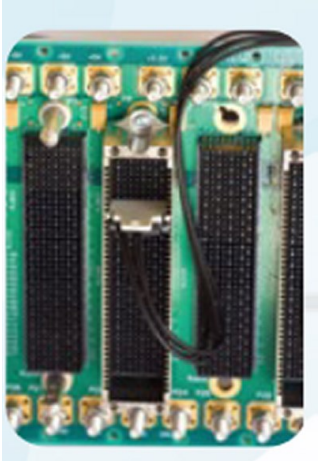

Rear of the unit has Molex power connector for cable (Power 24" cable provided by Dawn) which needs connection to GND (Black wire), +3.3V (Orange wire), and VPX System Reset (white wire) (if accessible). Note: (If VPX System Reset connection is not available, then connect to +3.3V.)




There is also a Meritec Wafer type connector cable (18") which exits the green zone of the image above. These options are provided to address the different VPX connector locations for XFI/KX/SGMII and other SERDES Ethernet type connections, this product is available with Odd (-x1) or Even (-x2) type cables installed.



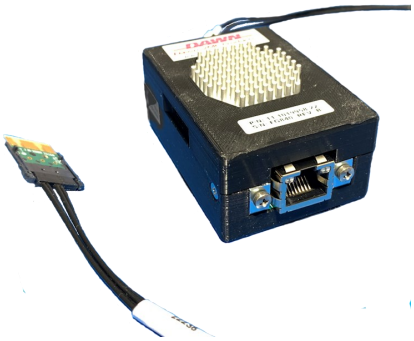

This cable is designed to install directly into the RTM side of a VPX backplane like shown in the image below. (Continued)



To do this installation, a Meritec shroud (as shown above) needs to be installed over the VPX connectors on the RTM side of the VPX Backplane.

Dawn can provided/quote this Meritec part if desired.

Here is a photo of the unit with the "ODD" wafer Meritec VPX plus cable attached. The Brown wire shown is the "i" pin, which is some times needed for other signal access.



## What enclosure solutions can you provide?

Response: The above images show the Dawn standard offering for the "Stand alone" unit. The housing is Polycarbonate with an Aluminum Heatsink at the top. This design is based on the Meritec VPX Plus cable solution.

### Can you provide a user guide?

Response: Currently there is no user guide as the design is based on a Plug and Play use profile. The 11-1019958-xx units are loaded with all 3 firmware options at the Factory (Dawn).

The current Firmware options are as follows:
1. 10G-XFI to 10GBase-T
2. 1GBase-KX to 1GBase-T (aka 1000Base-T)
3. 1G-SGMII to 1GBase-T (aka 1000Base-T)

**Note 1: Dawn has tested the 10G-XFI mode with Curtis Wright VPX3-687 VPX Network Switch card. If you need a guide to configure your VPX3-687 for 10G-XFI mode, Please request the White Paper from you sales representative.**

**Note 2: While the P/N ordered has the original selected firmware, If it is discovered a different firmware is needed it can be activated by changing the dip switch settings as shown on data sheet page.**

**Note 3: The 10GBase-KR mote is no longer supported on this product due to chip supply chain issues.**

# Part number matrix
# 11-1019958-XX

## Firmware options for Both above Versions

**11-1019958-4x = 10G-XFI to 10GBase-T**

**11-1019958-5x = 1GBase-KX / (aka 1000Base-T)**

**11-1019958-6X = 1G-SGMII to 1GBase-T (aka 1000Base-T)**

## VPX Standalone Hardware Versions:

**11-1019958-x1 = Odd wafer Meritec Cable**

**11-1019958-x2 = Even wafer Meritec Cable**

## Daughter card Hardware versions:

**11-1019958-x3 = Air cooled version**

**11-1019958-x4 = Conduction cooled version**