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 x-BaseT:

- **10G-BaseKR to 10G-BaseT**

- **1G-BaseKX to 1000-BaseT**

- **SGMII to 1000-BaseT**

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 Base-KR, 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 10G-BaseT or 1G-BaseT.

The solution to bridge this gab 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.
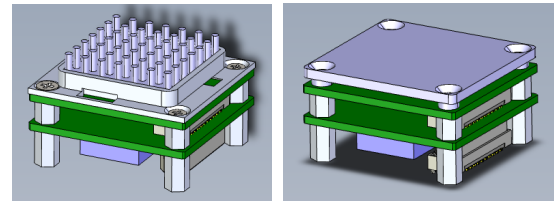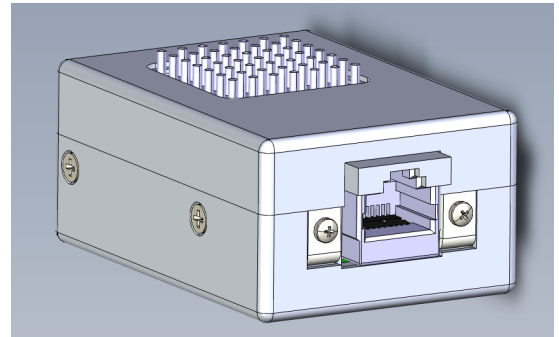
Specifications

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-DDP-A

VPX Standalone Module :

- RJ45 (CAT6) socket connector

- VPX Meritec (Odd or Even) RTM Cable

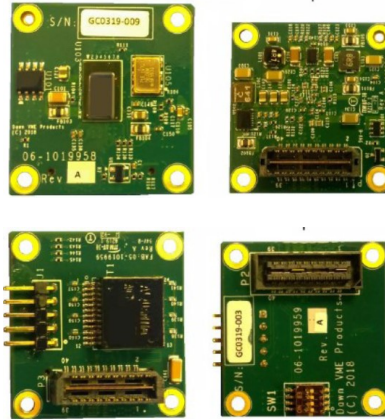- Power / Reset Cable (+3.3V & Reset)

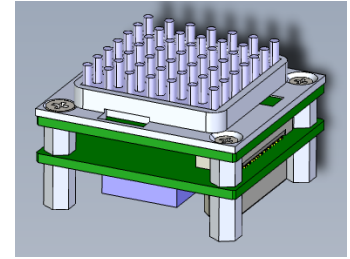**Power Requirements:**

- +3.3V @ 1 Amp

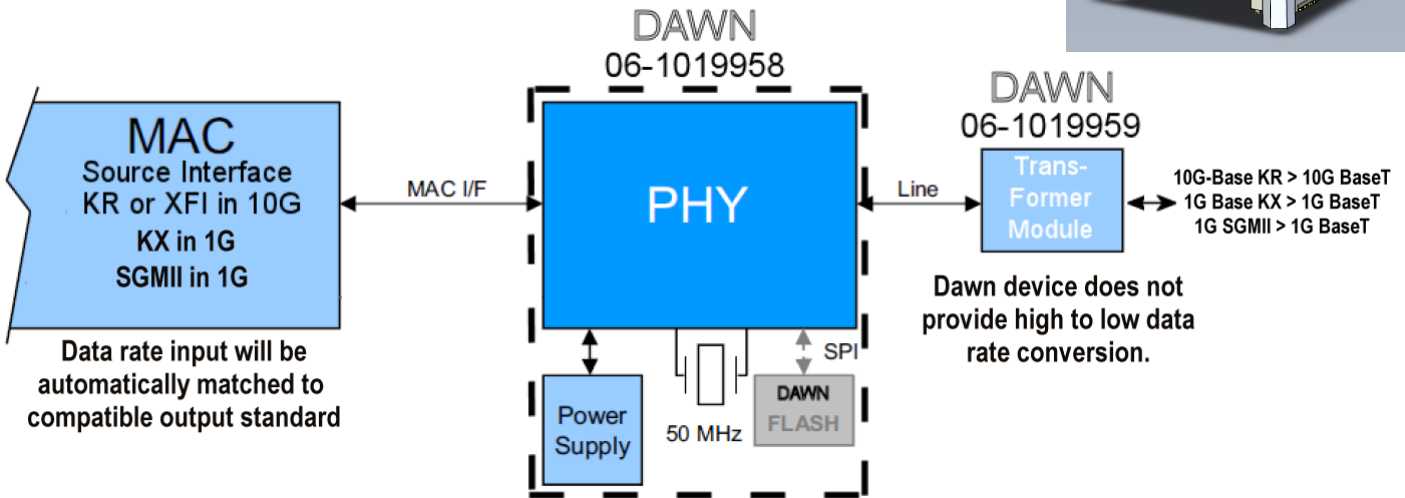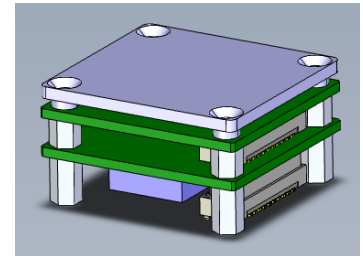# Product Images:

Standalone VPX module with Meritec Cable

Daughter Card Module board

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

Daughter card Assm. (Cond. Cooled)

MAC
Source Interface
KR or XFI in 10G
KX in 1G
SGMII in 1G

Data rate input will be automatically matched to compatible output standard

DAWN
06-1019958

MAC I/F

PHY

Power Supply

50 MHz

SPI

DAWN FLASH

DAWN
06-1019959

Line

Trans-Former Module

10G-Base KR > 10G BaseT
1G Base KX > 1G BaseT
1G SGMII > 1G BaseT

Dawn device does not provide high to low data rate conversion.

Daughter Card Interface connector pinout

|				
RESERVED	1	2	BASE-T_DD_P	
RESERVED	3	4	BASE-T_DD_N	
RESERVED	5	6	BASE-T_DC_P	
RESERVED	7	8	BASE-T_DC_N	TO ETHERNET INTERFACE
RESERVED	9	10	BASE-T_DB_P	
RESERVED	11	12	BASE-T_DB_N	
RESERVED	13	14	BASE-T_DA_P	
RESERVED	15	16	BASE-T_DA_N	
GND	17	18	SERDES_RX_P	
GND	19	20	SERDES_RX_N	
+3.3V	21	22	GND	
+3.3V	23	24	GND	TO BACKPLANE SERDES (KR /KX /USXGMII /SGMII) INTERFACE
+3.3V	25	26	SERDES_TX_P	
+3.3V	27	28	SERDES_TX_N	
GND	29	30	RESERVED	
GND	31	32	RESERVED	
RESERVED	33	34	RESERVED	
SYSRESET*	35	36	RESERVED	
RESERVED	37	38	RESERVED	
RESERVED	39	40	RESERVED	

P1

GND 41

The Base-T Side of the unit provides an RJ45 (industry standard) connector. (as shown in the image below).
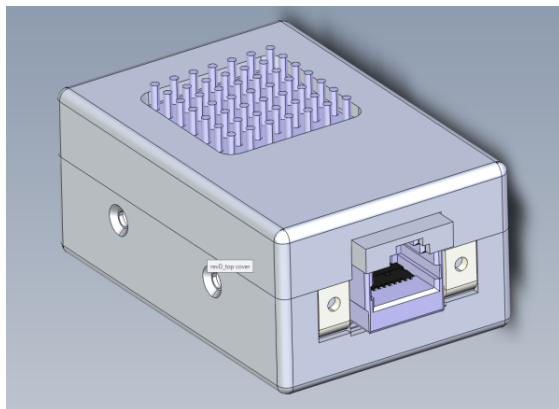
Rear of the unit has Molex power connector for cable (Power 24" cable provided by Dawn) which needs connection to GND (Black wire), +3.3V (Orange wire), and VPX System Reset (white wire) (if accessible). Note: (If VPX System Reset connection is not available, then connect to +3.3V.)
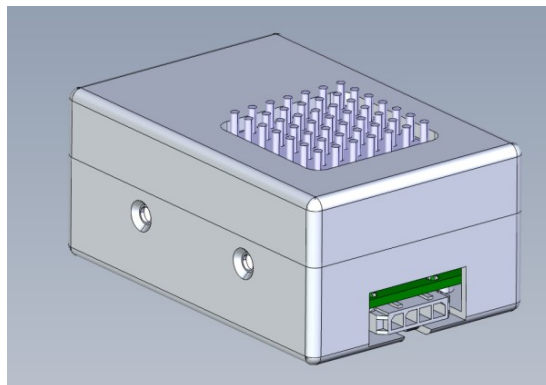
There is also a Meritec Wafer type connector cable (18") which exits the green zone of the image above. These options are provided to address the different VPX connector locations for KR-XFI/KX/SGMII and other SERDES Ethernet type connections, this product is available with Odd (-x1) or Even (-x2) type cables installed.

Odd Row Wafer   Even Row Wafer
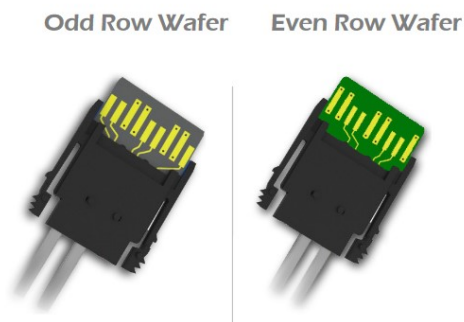
This cable is designed to install directly into the RTM side of a VPX backplane like shown in the image below.   (Continued)
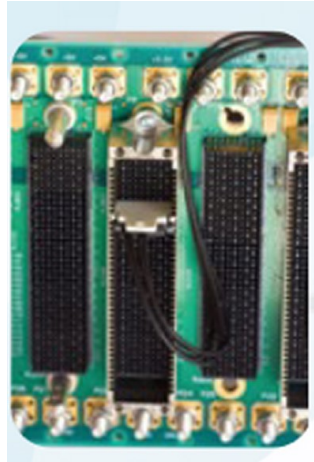
To do this installation, a Meritec shroud (as shown above) needs to be installed over the VPX connectors on the RTM side of the VPX Backplane.

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 the ordered firmware at the Factory (Dawn).

The current Firmware options are as follows: **(Note: There is no option for the customer to load firmware)**

1. 10G-BaseKR / XFI to 10G-BaseT
2. 1G-BaseKX to 1G-BaseT (aka 1000 Base-T)
3. 1G SGMII to 1G-BaseT (aka 1000 Base-T)

When powered up, the unit will automatically interface with both host (SERDES side) and Network Side (BaseT). There is the option to connect the SystemReset (white wire) , which when asserted (active low) reboots the unit and restarts the link qualification process.

In all cases, there is no user configuration required, as the firmware (selected at time of order) addresses the operational mode.

Part number matrix
11-1019958-XX

Firmware options for Both above Versions

11-1019958-1x = **10G BaseKR / XFI to 10G-BaseT**

11-1019958-2x = **1G-BaseKX to 1G-BaseT (aka 1000 Base T)**

11-1019958-3x = **1G SGMII to 1G-BaseT (aka 1000 Base-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