



FRONTGRADE

ADV PRODUCT BRIEF

SEIM

System Ethernet Interface Module

8/27/2024
Version 1.0.1

Introduction

The Frontgrade™ System Ethernet Interface Module™ (SEIM) uses two Marvell 882040L or two Marvell 88X3340 Quad Ethernet Transceivers to deliver eight channels of 10GBASE-T/5GBASE-T/2.5GBASE-T/1GBASE-T/100BASE-TX/10BASE-T. The module accepts eight USXGMII links that operate up to 10.3125Gbps to drive the Marvell Ethernet Transceivers. The module includes Frontgrade's UT32M0R500 ARM Cortex M0+ microcontroller, which handles configuring the Marvel Ethernet Transceivers along with providing module health status. The Compact 3U SpaceVPX design allows systems to add additional modules for additional links.

System Ethernet Interface Module: SEIM

Features

Marvell Alaska X 882040L Ethernet Transceiver

- 4-port, Five-speed PHY
- Compliant with IEEE 5GBASE-T
- Operates at 10M, 100M, 1G, 2.5G, or 5G
- Auto-media detect
- USXGMII Host interface
- MDC/MDIO management interface
- 28 nanometer (nm) lithography

Marvell Alaska X 88X3340 Ethernet Transceiver

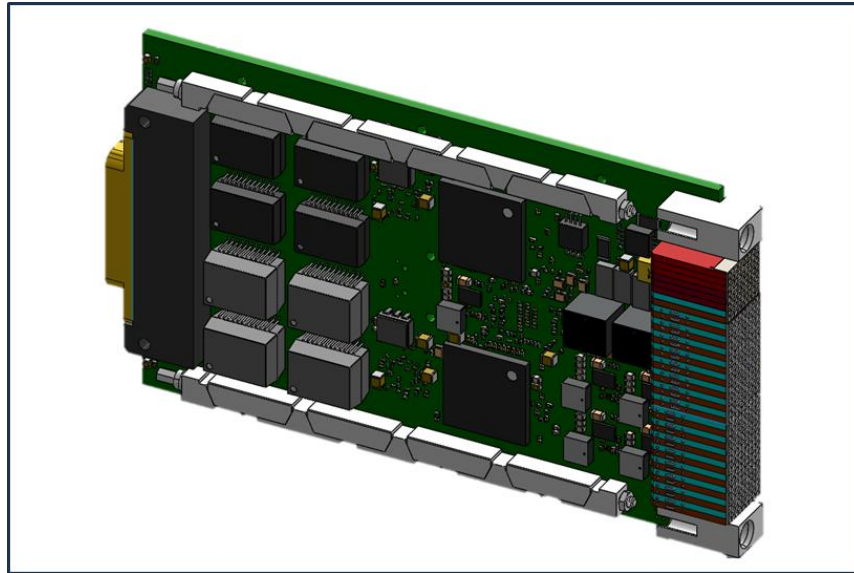
- 4-port, Six-speed PHY
- Compliant with IEEE 10GBASE-T
- Operates at 10M, 100M, 1G, 2.5G, 5G, or 10Gbps
- Auto-media detect
- USXGMII Host interface
- IEEE 1588v2 times stamping support
- MDC/MDIO management interface
- 28 nanometer (nm) lithography

Mass / Volume / Thermal

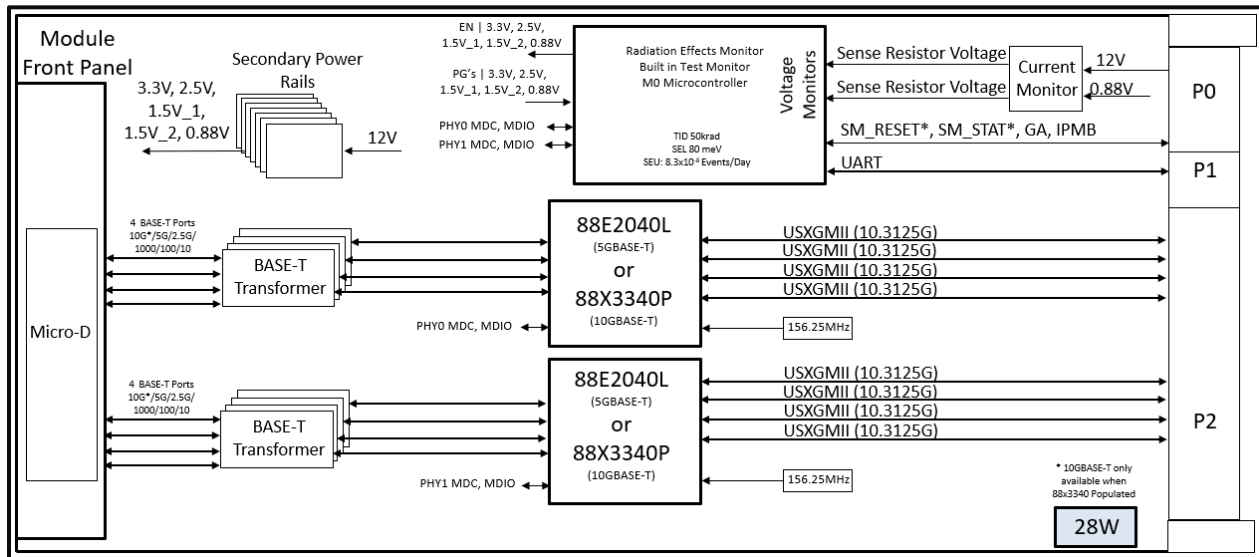
- Mass: less than 600 grams (estimated), standard 3U 160mm SpaceVPX form factor
- Maximum operating temperature mounted on a regulated thermal interface: 52°C
- Maximum power consumption: 28W

Operational Life / Reliability And Performance

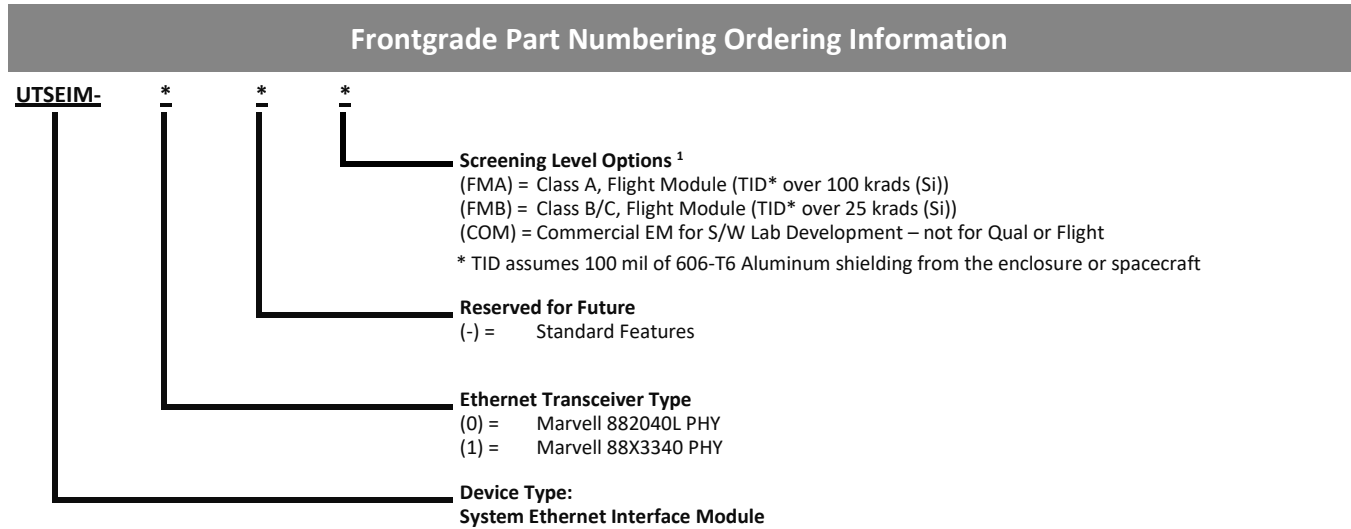
- System reliability over 0.9
- System SEU rate: No more than one ground intervention per year for typical LEO Missions
- TID of 25 krad (Si) or 100 krad (Si) optional assuming 100 mils of shielding with 6061-T6 Aluminum
- NASA PEM-INST-001 Level-2 parts pedigree available



Frontgrade SEIM



Ordering Information



Notes:

1. Screening Level Options (FMA, FMB, or COM) must be specified.

Revision History

Date	Revision #	Author	Change Description	Page #
4/28/2024	1.0.0	Kevin.Caster@Frontgrade.com	Advanced Product Brief – initial release and data is subject to change	All
8/27/2024	1.0.1	TLM	Editorial updates and formatting changes throughout. Sheet 5: Replaced export-controlled note with unlimited distribution statement.	All

Datasheet Definitions

	Definition
Advanced Datasheet	Frontgrade reserves the right to make changes to any products and services described herein at any time without notice. The product is still in the development stage and the datasheet is subject to change . Specifications can be TBD and the part package and pinout are not final .
Preliminary Datasheet	Frontgrade reserves the right to make changes to any products and services described herein at any time without notice. The product is in the characterization stage and prototypes are available.
Datasheet	Product is in production and any changes to the product and services described herein will follow a formal customer notification process for form, fit or function changes.

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