

MFCC-8580 SBC

INTEL Core-i7 11th Gen XMC Module, BuiltSAFE™



Built for demanding embedded AI aerospace missions, this SBC combines high performance, rugged reliability, advanced video, and dependable long term support

- Intel® Core™ Gen 11 processor
- Integrated Intel® Iris® Xe Gen12 GPU
- Vector (AVX-512) and AI accelerators
- 10 Gb Ethernet
- Safety certifiable with DAL-D DO-254 and DO-178C artifacts



The MFCC 8580 is a rugged, reliable Single Board Computer (SBC) designed for advanced aerospace systems. It delivers fast processing and high quality video, works seamlessly with modern modular hardware, and meets important safety standards. Built for long term use and fully exportable, it's a dependable choice for global programs.

Designed for deployment across air, land, and sea domains, it supports both civil and military platforms and enables operation on a wide range of systems with distinct operational, commercial, or mission critical requirements.

Highlights

- XMC Single Board Computer. Compatible with SOSA™-aligned VITA 65 OpenVPX carrier boards for modular and scalable system integration.
- Embedded mobile processor version (UP3-class) of INTEL core i7 CPU from 11th generation.
- High-Performance Embedded Computing; Optimized for real-time processing in aerospace applications in a competitive power budget.
- Embedded GPU: Supports advanced video features and high-resolution graphics processing.
- Ruggedized Design: Built to withstand extreme temperatures, shock, vibration, and other harsh environmental conditions.
- Comprehensive Software Support: Mercury provides optimized BIOS/UEFI and Linux distribution.
- Safety-Certifiable: Suitable for use in applications up to Design Assurance Level D (DAL-D) per DO-178C/DO-254 standards.
- Compatible Mercury product line: ROCK-2 & ROCK-3.
- ITAR-Free: Fully exportable, enabling use in international programs without export restrictions.

DESIGNED WITH BUILTSAFE™ TECHNOLOGIES—TESTED, CERTIFIED AND FIELDIED OVER THREE DECADES

The MFCC-8580 board is architected using Mercury's proven BuiltSAFE Commercial-Off-The-Shelf (COTS) elements and artifacts to deliver flawless performance and ease of systems integration. Modular and reusable, BuiltSAFE technologies maximize interoperability and speed technology refresh by minimizing the need for recertification. Mercury's BuiltSAFE solutions have been designed, tested, certified and fielded over three decades on multiple safety-critical platforms.

TECHNICAL SPECIFICATIONS

Processing and Video

- Intel Core-i7 1185GRE 4-cores @4.4GHz turbo freq (UP3-class)
- Intel Iris Xe GPU @1.35GHz – TDP 28W
- Board management Controller (BMC)

Memory

- 2x DDR4 x16 channels (16GB each) up to 3200MT/s supporting In Band ECC
- 64GB SSD (SLC technology)

XMC interfaces

- 1x PCIe gen4 x4 (CPU)
- 1x PCIe gen3 x4 (PCH)
- 2x PCIe gen3 x1 OR 2x SATA 3.0 (PCH) – a combination 1x PCIe/ 1x SATA may be supported
- 1x USB2/3 (CPU)
- 1x Display Port MST out (CPU) up to HBR2.
- 2x 10GBASE-KR (Ethernet controller E810)
- 2x 1000BASE-KX (Ethernet controller I350)
- 1x SPI with 2 CS / 1x SMBUS / 1x I2C / 2x UART (PCH)

Security Features

- Trusted Platform Module Rev 2.0
- SE051 security IC (root of trust)
- I2C authentication

Rugged and Low Power

- Operating Temp: 0°C to 55°C or -40°C to 85°C options. Customizable.
- DO-160G, MIL-STD-810G, MIL-STD-1686C, MIL-STD-202H option

Power Consumption

- Minimum: 29W
- Typical: 32W
- Maximum: 48W

SW support

- Optimized BIOS/UEFI
- Mercury Yocto Linux distribution for embedded application

Third- Party Compatibility

- Various RTOS, (PikeOS, Integrity, LynxOS, VxWorks)
- Certifiable Video libraries (CoreAVI)

Compliance

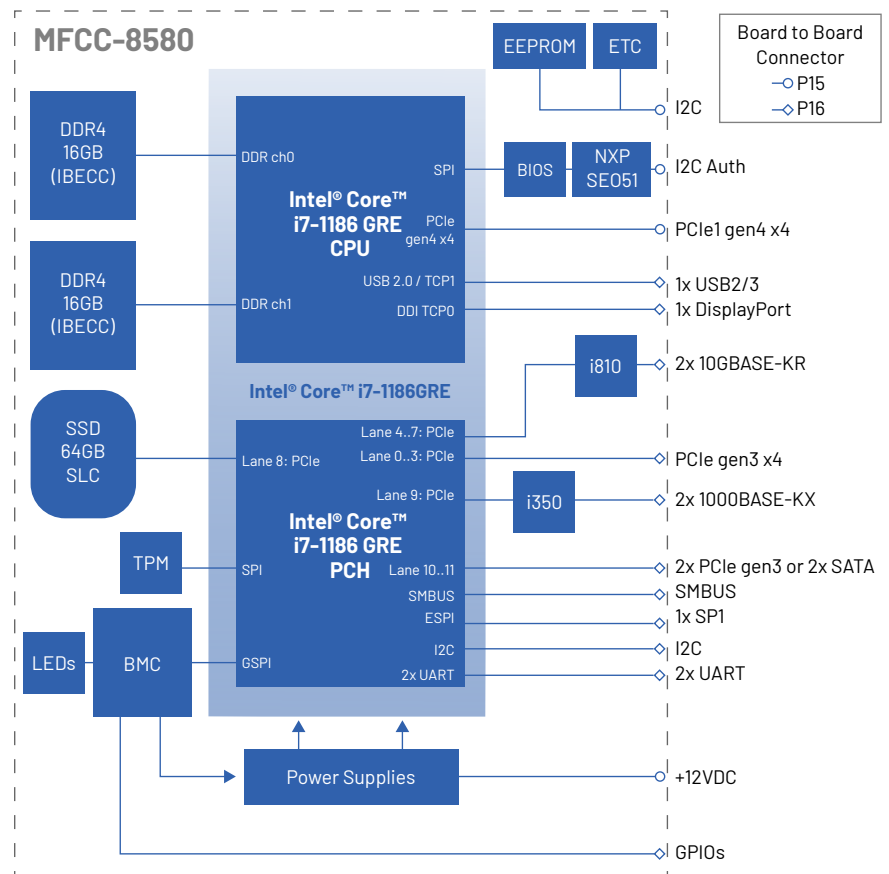
- XMC 2.0 (VITA-61)
- Compatible with SOSA™-aligned VITA 65 OpenVPX carrier boards

BuiltSAFE™ Proven Elements

- DO-254 hardware up to DAL-D
- DO-178C board management features and processor board support packages up to DAL-D
- Design and quality assurance
- Full Configuration control
- Pro-active Obsolescence Management

Export Control Classification (ECN)

- CH ECN: N/A
- Tariff Nr: 8471.5000
- LIC: No License Required (NLR)
- Origin: Switzerland

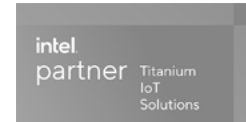


PRODUCT FAMILY INFORMATION

This product is part of the Mercury INTEL Core-i7 11th Gen comprehensive product family, leveraging design building blocks, knowhow and knowledge.

MFCC-8580	General Purposes, High processing XMC Single Board Computer (SBC) Module
	Safety Critical, (DAL-B/A), XMC Single Board Computer
MFCC-8581	- XMC variant compliant to XMC 2.0 VITA 42 / VITA 61 standards - SFF variant optimized for Small Form Factor Equipment Integration
CIOB-2580	Safety Critical, (DAL-B/A), 3U-VPX Single Board Computer (SBC module)

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