



MOSARC™ ASSURED MULTICORE CARD (AMC)

OPEN SYSTEMS ARCHITECTURE, FUTURE-READY AVIONICS

Providing modern multicore safety-critical computing

As artificial intelligence, 3D and other real-time application technologies advance, the time and risk of bringing new capabilities to aircraft decrease. Collins Aerospace is meeting that demand with the Mosarc™ Assured Multicore Card (AMC). Part of a broader family of computers, our Mosarc AMC has a civil certification pedigree for avionics and offers modern safety-critical computing for civil and military applications.

With safety in mind and a modular open systems approach (MOSA), we designed Mosarc AMC with technical advantages for real-time performance.

OPERATING SYSTEMS

- Real-time – DO-178C DAL-A Hypervisor with RTOS/Linux GOS
- Secure – MILS Hypervisor with RTOS/Linux GOS
- Mission-focused - Linux OS running SMP or as GOS on Hypervisor

KEY FEATURES & BENEFITS

- Avionics high-integrity multicore card
- Developed to meet mixed criticality
- Design assurance level DAL A to DAL D
- Open systems approach (SOSA™, HOST, MOSA)
- FAA certification pedigree
- Qualified for ruggedized environment

FOUNDATION SOFTWARE (TARGETED FOR FACE™ CONFORMANCE)

- ARINC 653 health monitor
- Transport services
- I/O services

SAFE SYSTEMS

- Isolation of networking stack to Core 0 with relay system to other cores
- Processor health monitor aware of all cores fault history and overall processor mode
- Use of software watchdogs on each core to monitor software schedule
 - Core 0 health monitor aggregates responses and controls the HW Watchdog timer

SPECIFICATIONS

- Embedded NXP QorIQ T2080 PowerPC processor
 - Four e6500 cores
 - > 1.5 GHz core speed
 - > Private 32 KB instruction and data L1 cache per core
 - > Shared 2MB L2 cache
 - Hardware acceleration functions
 - > Queue and buffer manager
 - > Security/encryption engine (SEC 5.2)
 - > Pattern-matching engine (PME 2.1)

- 4 GB embedded DDR3 1600 with ECC (8 GB growth potential)
- 1 GB NOR flash memory with read-only hardware control
- 4 MB or 6 MB embedded MRAM/NovRAM with optional read-only hardware control
- External I/O
 - 14 Predefined configurable SerDes ports
 - > Up to 5 PCIe Gen 2 interfaces (one can be Gen 3)
 - > Up to 3 1000Base-KX or SGMII interfaces
 - > Up to 2 10GBase-KR or XFI interfaces
 - > Up to 2 SATA 2.0 interfaces
 - 2 USB 2.0 interfaces
 - > Host and endpoint modes supported on both interfaces
 - 2 RS-232
 - 2 10/100/1000 Base-T ports (magnetics provided on-board)
 - External I2C interfaces to support IPMI (growth)
- SWaP
 - Size IEEE 1101.2/VITA 48 3U form factor (100mm x 160mm)
 - Weight SCX3 card: ~ 0.4 lbs.
Module with heatsink approximately 1.2 lbs (~180g)
 - Power 28 W (typical), 35 W (maximum) @ 1.5 GHz VS1 (12V) and 3.3V_AUX utilized

Specifications subject to change without notice.



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