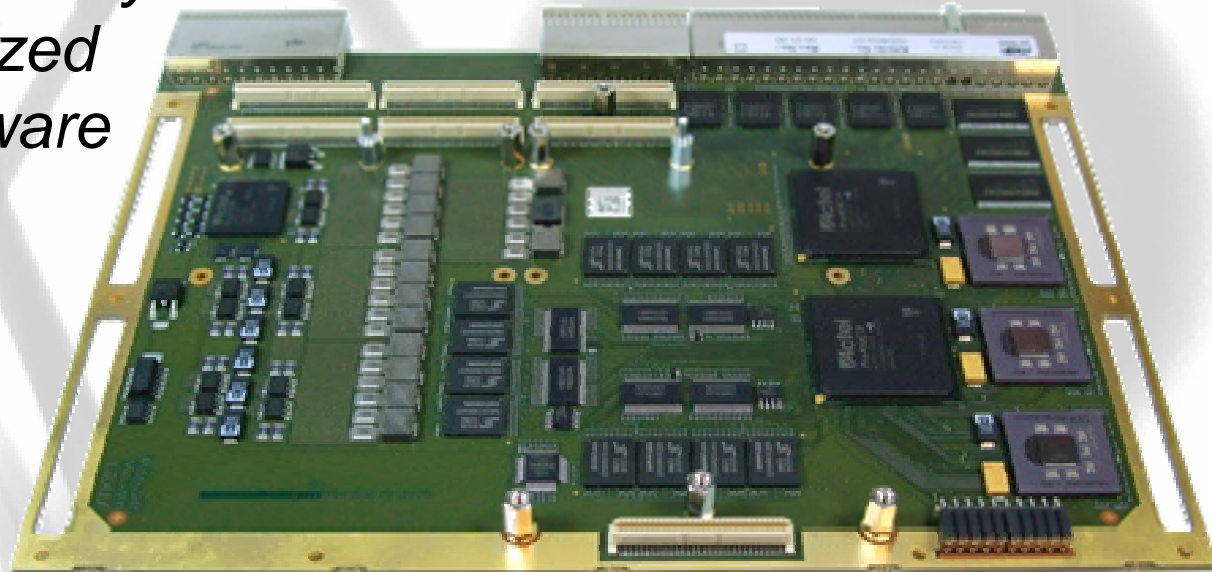


Triple-Redundant 6U CompactPCI® PowerPC® SBC D602

Rugged, conduction-cooled SBC

*Advanced redundancy
features fully utilized
by standard software*

*Compliant with
DO-254 up
to DAL A*



Overview

Highlights

- ◆ Triple redundancy on a single board (CPUs, RAM)
- ◆ Redundant Flash memory
- ◆ Redundant local PSUs
- ◆ All I/O in FPGA
- ◆ Connection to 2nd D602 for high-availability clusters
- ◆ -40 to +85°C with qualified components
- ◆ Conduction cooling, conformal coating
- ◆ Compliant with DO-254 up to DAL A
- ◆ Altitude up to 20,000 meters

Benefits of the D602 design

Typical safety architecture

- ◆ 2-out-of-3 system with 3 redundant computer systems
- ◆ Requires complex software to synchronize and vote the 3 systems
- ◆ Synchronization reduces performance
- ◆ Requires specialized I/O
- ◆ 3 systems require space and power
- ◆ Use of complex COTS components → difficult to certify

System with D602

- ◆ Built-in redundancy on a single 6U board
- ◆ Same software as for a single-CPU board
 - ⇒ Dramatically reduces software development costs!
- ◆ Lower power consumption and space requirements compared to 3 systems
- ◆ All complex functionality in FPGAs developed according DO-254

Key Features

Triple redundant dynamic memory automatically corrects upsets caused by cosmic radiation (SEU) and hardware faults

Designed for deterministic operation

Extensive BITE features (e.g., ECC error counters for all types of memory, monitoring of all internal voltages)

Internal busses with error correction

Fault-tolerant (fail-operational) implementation

Mechanics

1-slot 6U cPCI system slot card

2x PMC slot:

- ◆ 1x Rockwell Collins AFDX (or standard PMC without I/O)
- ◆ 1x CCPMC for graphics

All I/O on rear:

- ◆ 1x RS232
- ◆ BMC I/O
- ◆ Board Management

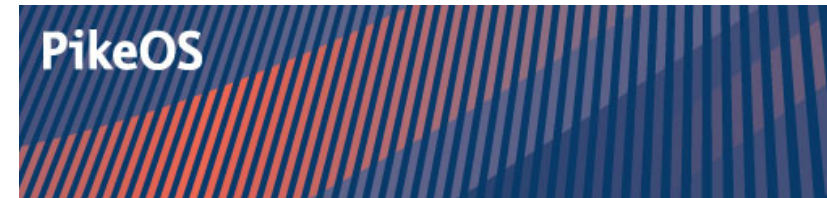
and more...

Software

MENMON firmware/BIOS



Bootloader/PikeOS



Summary

- ◆ *SBC with triple redundancy realized on a single board*
- ◆ *Designed for airborne operation at up to 20,000 meters*
- ◆ *SEU-resistant, compliant with DO-254 up to DAL A*
- ◆ *Rugged for harsh environments, conformal coating*
- ◆ *-40 to +85° C, conduction-cooled*
- ◆ *Long-term availability (10 years)*

⇒ Safe hardware simplifies software development!

Thank you for your attention!

Our mission is to provide embedded computing and I/O solutions for demanding industrial applications while maximizing innovation, reliability and flexibility.



As a member of the UN Global Compact Initiative, MEN is committed to follow the principles of human rights, labour, environment and anti-corruption as defined by this organization.