



FORCE2

Open reference computing environment for FACE applications

The rugged small form factor FORCE2 Display Computer combines state of the art Freescale™ Power Architecture™ CPU technology with the latest graphics processing unit (GPU) to deliver unprecedented levels of performance for rugged applications. When deployed as an avionics display computer, mission computer and flight computer, the FORCE2 supports the industry's most demanding video and image applications.

The FORCE2 comprises COTS boards packaged in a proven chassis design with a high technology readiness level (TRL), allowing customers to focus on application design by reducing integration effort, thus lowering risk and time to market. To further reduce risk, Abaco Systems works with selected software partners to ensure interoperability between FORCE2 and software packages.

In addition to existing COTS software, the FORCE2 is designed to be compatible with applications developed according to the principles of the FACE™ Consortium. The Future Airborne Capability Environment (FACE) Consortium is leading the development of open standards for avionics systems. The intention of the standard is to bring interoperability and portability, as well as ensuring a robust architecture and quality software development.

The FACE architecture is intended to drive more capabilities to the warfighter faster, while stimulating innovation within the avionics industry.

The SBC314 processor module used in the FORCE2 is based on the Power Architecture T2081 CPU with a T1042 variant as a lower power processor option, which is optimized for lower power consumption applications. It offers four single threaded cores consuming less than 7.5W. The SBC314 offers processing performance via four processing cores within the power envelope of previous dual core boards. Combined with extensive I/O, the SBC314 is ideal for a wide range of high performance mil/aero applications.

The graphics capability in the FORCE2 is provided by the AMD E8860 GPU providing an optimum balance between high performance and low power for many military and aerospace applications. It provides 2 GB of GDDR5 local memory.

Ideal for applications requiring flight certification, the FORCE2 roadmap includes DO-254 artifacts for use in systems requiring Design Assurance Level (DAL) D up to A.

FEATURES:

- Freescale™ QorIQ™ T1042 or T2081 processor
- AMD Radeon™ E8860 or core AVI E8860 GPU's available
- 1553/ARINC429 I/O options
- Solid state disk option up to 1 TB
- Weight: 6.8lbs (4kg)
- MIL-STD-704F 28VDC power
- Qualified to MIL-STD-461G, DO-160G, MIL-STD-704F, MIL-STD-810G
- -40° C to +71° C operating temperature
- Cold-plate cooled
- FACE-aligned operating systems and I/O services
- RTOS OpenGL support

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Specifications

CPU

- 1.4 GHz QorIQ T1042 with four e5500 cores
- 1.8 GHz QorIQ T2081 with eight e6500 cores
- 4 GB DDR3L SDRAM with ECC
- 256 GB NOR flash
- X4 PCIe Gen 2 to GPU
- X4 PCIe Gen 2 to avionics I/O

Graphics Options

- AMD or coreAVI E8860 GPU
- 2 GB GDDR5

Video Outputs

- 4x DVI
- 2x VGA

Video Inputs

- 1x composite video input

Avionics I/O

- 8x ARINC 429 TX
- 10x ARINC 429 RX
- 4x MIL-STD-1553 (Dual-redundant)
- 6x avionics discretes

Front Panel Interfaces

- 2x 1000BASE-T Gigabit Ethernet
- 2x USB 2.0
- 2x RS-232/RS-422 or 4x RS-232

Software support

- FACE-aligned operating systems and I/O services
- RTOS OpenGL support
- VxWorks™ 653 operating system
- COREAVI DO-178C certifiable drivers

Environment

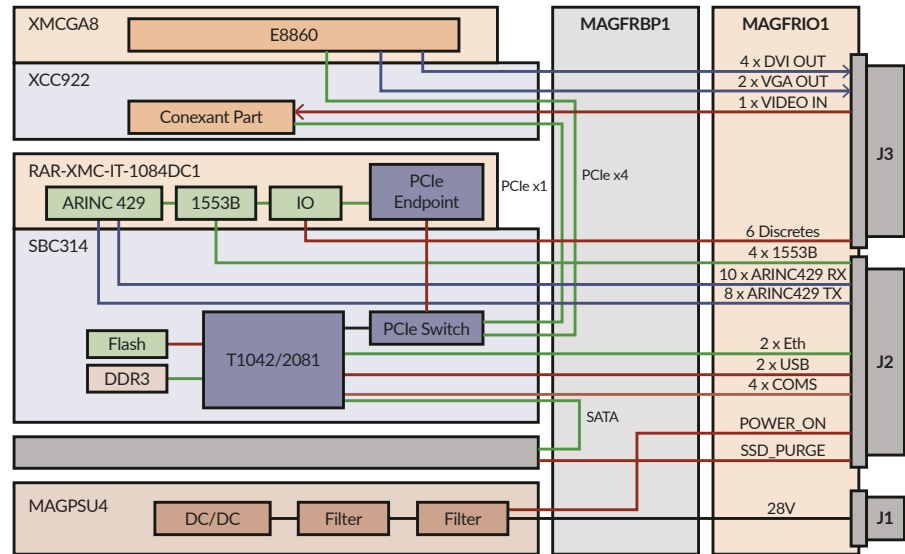
- Cold-plate or convection cooled
- Operating temperature: -40° C to +71° C
- MIL-STD-704F 28V DC input

Qualification

- Qualified to DO-160G

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Block diagram



Ordering information

FORCE2 F 2 4 2 B 0 0 0

FORCE2	X	X	X	X	X	X	X	X	Description/Conditions
A	L C F								Lab Grade 0°C to 40°C Cold Plate Cooled -40°C to +71°C Convection Cooled -40°C to +71°C
B		1 2							1.4 GHz T1042 - SBC314 with 4 GB DDR3 SDRAM 1.8 GHz T2081 - SBC314 with 4 GB DDR3 SDRAM
C			1 2 3 4 5 6 X						Commercial Grade 128 GB SSD (MLC) Rugged 64 GB SSD (SLC) Rugged 128 GB SSD (SLC) Rugged 256 GB SSD (SLC) Rugged 512 GB SSD (SLC) Rugged 1 TB SSD (MLC) Reserved - No SSD Populated
D				1 2 3					XMCGA8 with Radeon E8860 XMCGA8 with CoreAVI E8860 XMC-2500
E					1 2 3 4				Boot firmware VxWorks Bootloader Boot firmware BIT and VxWorks Bootloader Boot firmware U-Boot Boot firmware BIT and U-Boot
F							0		Reserved
G								0	Reserved
H								0	Reserved

WE INNOVATE. WE DELIVER. YOU SUCCEED.

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