

# ACT 8010/8011

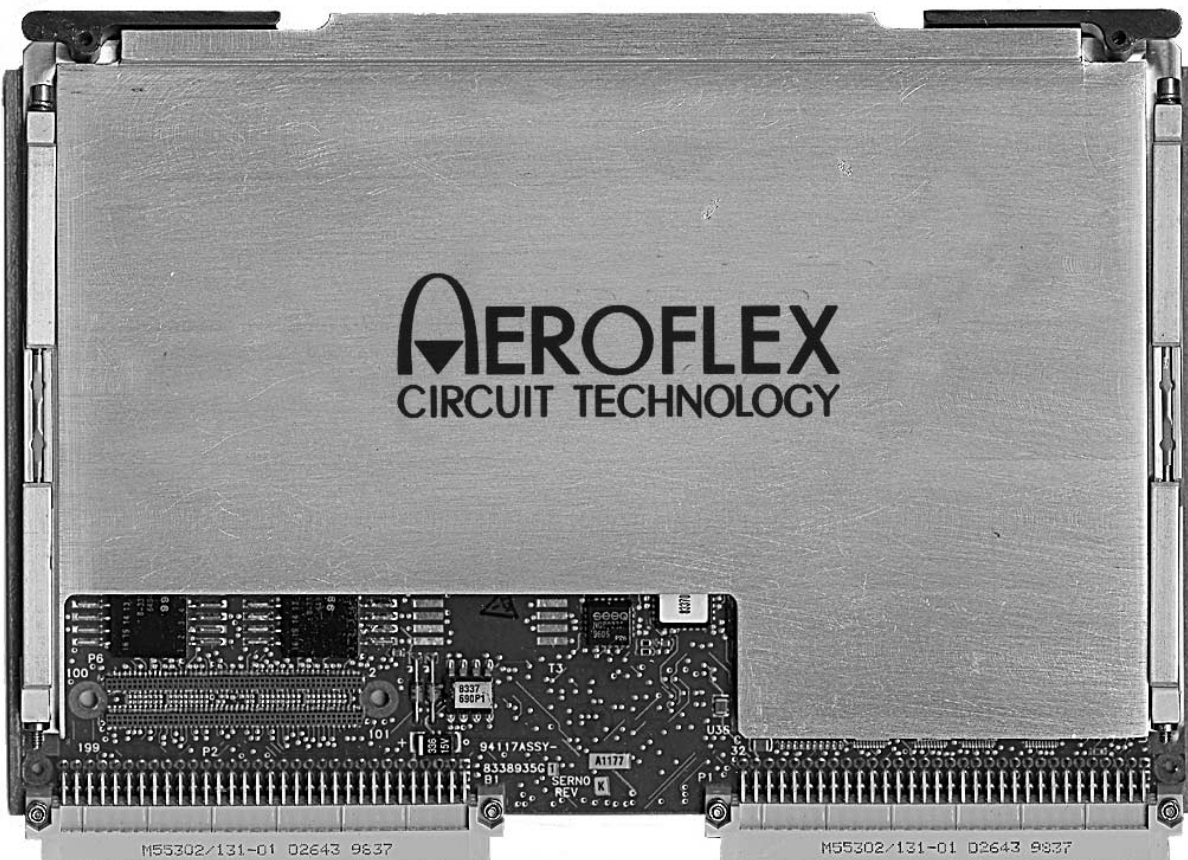
## Star III – RISC-Based VME Single Board Computer

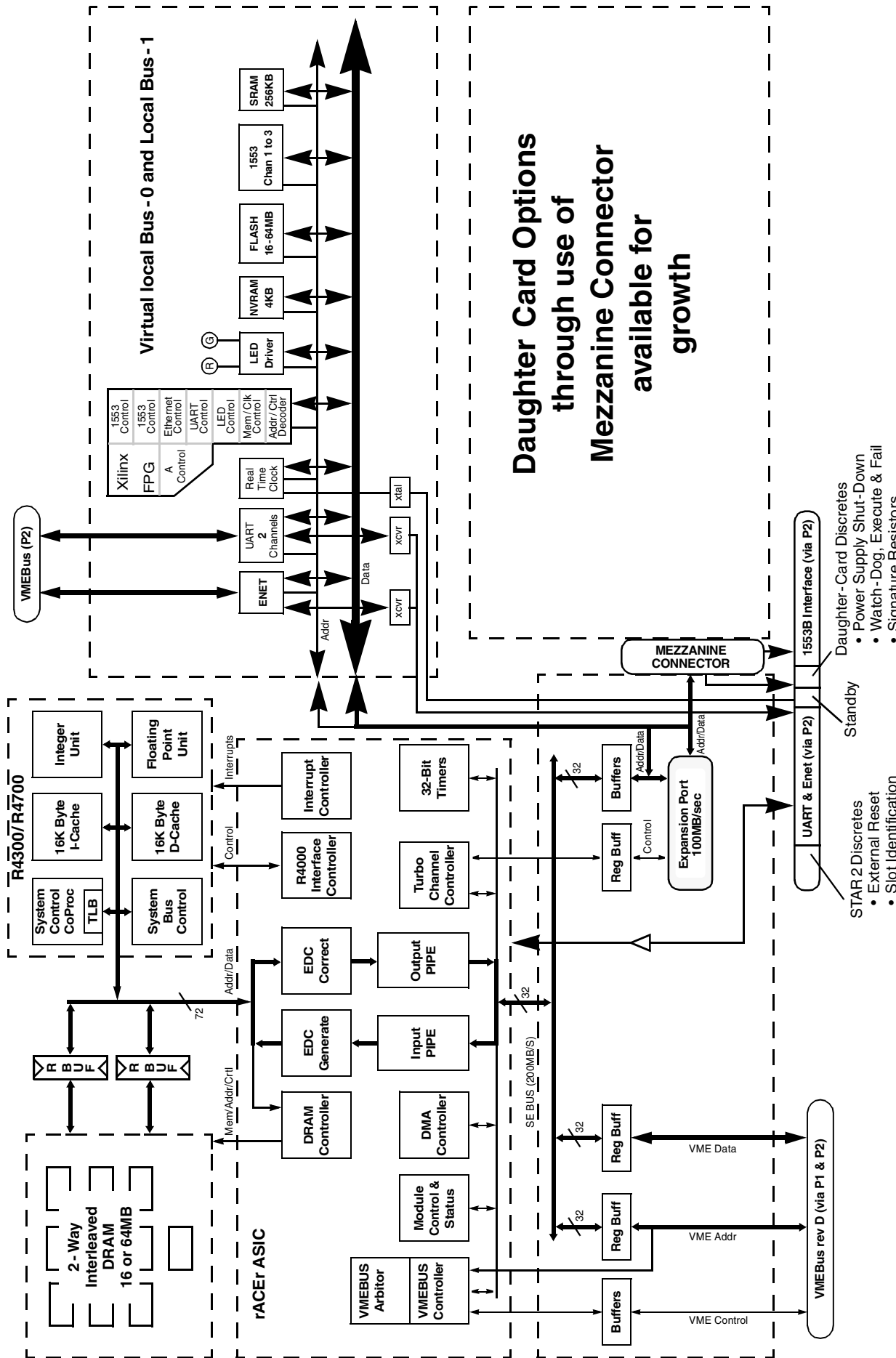
### Functional Overview

The STAR III product line presently consist of three standard types of Militarized VMEbus based Single Board Computer boards. The first is called the Input Output Processor (IOP) and the second is called the Central Processor Module (CPM). Both STAR III boards make use of the R4430PC MIPS RISC Processor operating at 50 MHZ (100 MHZ internal, cycle time 10ns) and utilizing the VxWorks Real Time Operating System (RTOS). The processor is rated at 60 VAX MIPS and 33 MFLOP/sec for floating point calculations. The third is very similar to the CPM mentioned above but utilizes the R4700 RISC Processor for greater performance.

Each VMEbus card (IEEE 1014, 6U 160 Form Factor) contains the following;

- Processor L1 Cache for Instructions and Data (16KBytes each)
- Address space 64 Gigabytes in 64-Bit mode, 4 Gigabytes in 32-Bit mode
- Dram 64/16 MBytes CPM/IOP, with error detection & correction
- Flash 16/48 MBytes CPM/IOP
- NVRam 8KBytes
- Four 32 bit programmable Timers
- Real Time Clock (RTC), with battery backup capabilities
- DMA Controller
- VMEbus Full Master/Slave D8, D16, D32, D64, A24, A32, up to 58MB/second
- Two Independent RS-232 Ports
- One Ethernet AUI Port IEEE 802.3 Compatible
- As many as Three (3) 1553B Ports on IOP only, Supports DDC BU-61580 as RT, BM and BC
- Mezzanine expansion connector
- Two Diagnostic Leds
- Supports Numerous Exception Interrupts and 25 Hardware Interrupts
- PMON Built in Test





**Daughter Card Options  
through use of  
Mezzanine Connector  
available for  
growth**

- STAR 2 Discretes
- External Reset
  - Slot Identification
- Daughter - Card Discretes
- Power Supply Shut-Down
  - Watch-Dog, Execute & Fail
  - Signature Resistors

**STAR III Block Diagram**

## Specifications

Power .....	15W
Voltage Requirements .....	+5V@ 3A max, +12V@ 150mA max
Operating Temperature .....	Rail Temperature , -54°C to +55°C (cont.), -54°C to +71°C (Intermittent)
Storage Temperature .....	-54°C to +125°C
Relative Humidity .....	Up to 95% non-condensing
Altitude Operating & shipping .....	50,000 feet
Acceleration .....	12G
Random Vibration .....	15 Hz to 2KHz @ .01g <sup>2</sup> /Hz
Shock .....	20G for 11 seconds
Physical Form Factor .....	Double-sided VME 6U-160
Dimensions	
Height .....	9.2 inches (233mm)
Depth .....	6.3 inches (160mm)
Thickness .....	.8 inches (20mm)
Weight .....	1.865 pounds
Cooling .....	Conductive

## R4X00 MIPS Processor Description

The MIPS R4X00 utilizes a RISC type architecture to provide the latest state of the art processor engine, below is a list of attributes provided by this processor. A serial PROM is used to set up and initialize the processor prior to startup.

- ◆ 50MHz external clock, 100MHz internal clock with 10ns cycle time.
- ◆ Thirty-two 64-Bit registers
- ◆ Physical Address Space: 4 Gbytes 32-Bit mode / 64 Gbytes 64-Bit mode
- ◆ Dynamically configurable big / little endian
- ◆ Floating Point Unit Single & Double precision operations
- ◆ 16Kbyte Instruction cache
- ◆ 16Kbyte write back Data cache
- ◆ Memory Management, Translation Lookaside Buffer (TLB) for fast logical to physical address translation

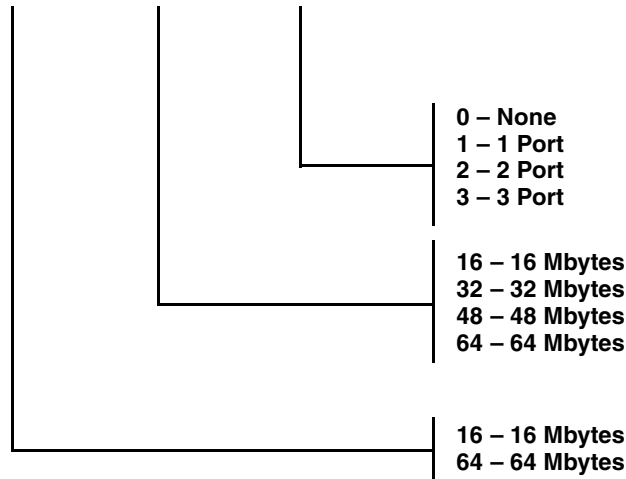


**Ordering Information**

**STAR III R4430 RISC Processor Boards**

**ACT 8010 - 16 - 16 - 3**

RAM Size    Flash Size    1553 Port



**Standard Part Offering**

CPM = ACT 8010-64-48-0

IOP = ACT 8010-16-16-2

**Note: ACT 8011 Series STAR III Boards utilize the R4700 RISC Processor and has the same part numbering scheme as the ACT 8010.**

Specifications subject to change without notice

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