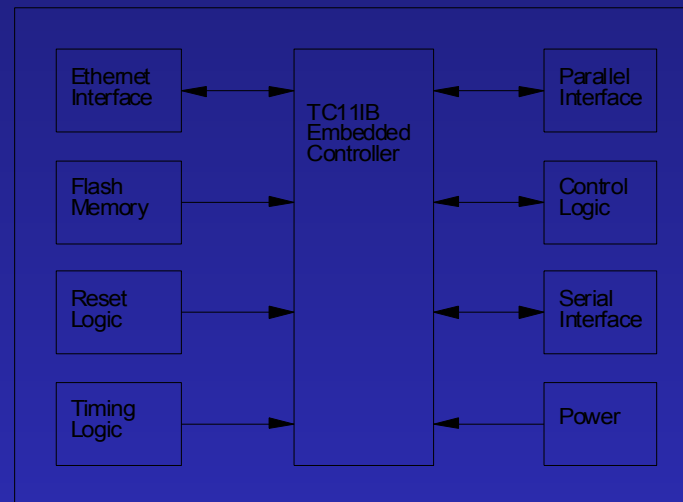
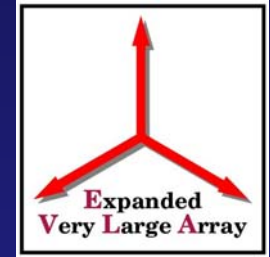


# EVLA Monitor and Control

## Module Interface Board (MIB) Design



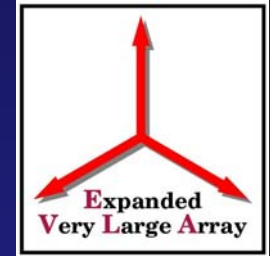
# MIB Block Diagram



MIB Block Diagram



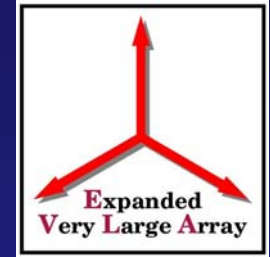
# Embedded Controller



- Infineon TRICore TC11IB
  - System On a CHIP
  - 12 MHZ External Clock
  - 1.5 MBytes RAM
  - Hardware, Software & Watchdog Resets
  - Sleep Modes
  - Six Thirty-Two Bit Timers



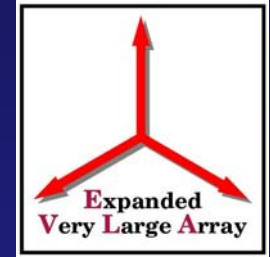
# Embedded Controller



- Infineon TC111B – Interfaces
  - Media Independent Interface (Ethernet)
  - Two Asynchronous Serial Ports
  - One Synchronous Serial Port (SPI)
  - External Bus Unit (EBU)



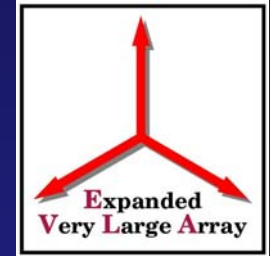
# Ethernet Interface



- Ethernet Interface – 100 MBits/second
  - Translation Chip – Intel LXT971A
  - Fiber Optic Transceiver – Infineon V23809-C8-C10



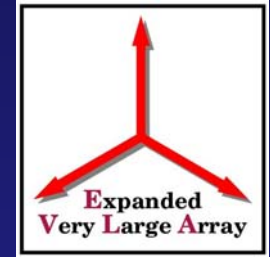
# Flash Memory



- Flash Memory
  - Serial Flash or Parallel Flash (8MByte)
    - ◆ Serial Flash?
    - ◆ Parallel Flash – AMD Am30LV0064D
  - All Code Documented



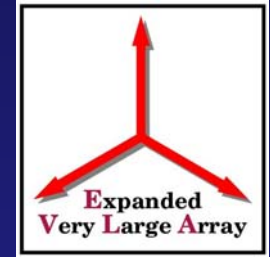
# Power & Reset Logic



- Power & Reset Logic
  - Power Regulator & Supervisor
    - ◆ Texas Instruments TPS70351PWP
  - Watchdog Protection – TC11IB
  - Devices will get User Reset and MIB Reset
  - Devices Must Reset into Safe Condition



# Timing Logic

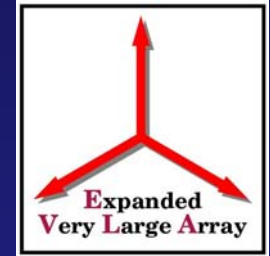


- Timing Logic
  - 19.2 Hz Timing Signal (Heartbeat)
  - 1 PPS Timing Signal?
  - 10 Second Timing Signal?
  - Devices May Require Precise Timing
    - ◆ Hardware Timing





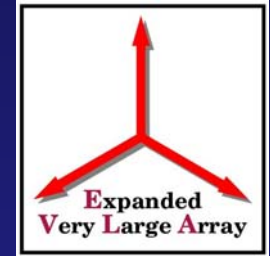
# Parallel Interface



- Parallel Interface
  - External Bus Unit
  - Thirty-Two Bits Data Transfer (8, 16 or 32)
  - Address Lines (Twenty-Four Possible)
  - Texas Instruments SNLVTH32(244/245)
  - LVTTTL Outputs, TTL Compatible



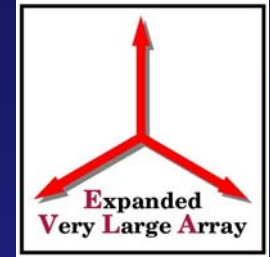
# Control Logic



- Control Logic
  - Peripheral Interface Signals
    - ◆ RD\*, WR\*, ALE, WAIT\*, CS\* Lines
    - ◆ Resets\*, SPI, etc.
  - Texas Instruments SNLVTH32244
  - LVTTTL Outputs, TTL Compatible



# Serial Interfaces



- Serial Interfaces
  - Asynchronous Ports
    - ◆ One RS232 Modem Port (Auto Off)  
Maxim MAX3225CAP
    - ◆ RS485 Port?
  - Synchronous Ports
    - ◆ Serial Peripheral Interface Port – SPI