

Control & Visualization Module

Key Features

- High Speed Miniature Single Board Computer
- Freescale i.MX35 at up to 532MHz with integrated Vector Floating Point Unit
- Open VG 2.5D graphics acceleration for best multimedia experience
- Up to 256MB DDR2 RAM
- 1GB NAND Flash memory
- 100Mbps Ethernet interface
- USB Host & Device ports
- Single 5V supply
- Low power consumption for fanless design
- Industrial qualification

Typical Applications

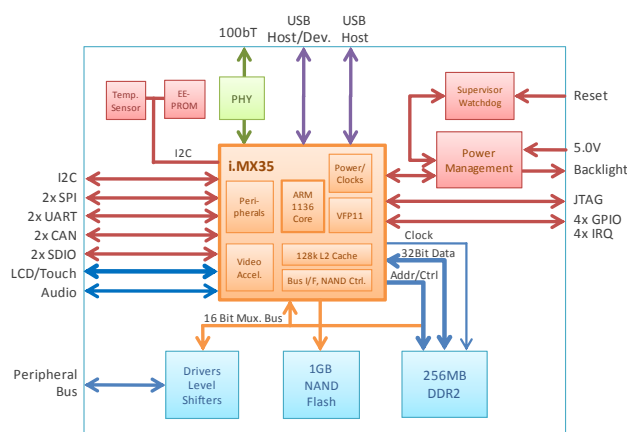
- Industrial controller with enhanced user interface
- Medical devices
- Operator terminal
- Computation intensive numerical control
- POS terminal
- Infotainment

Control & Visualization (C&V) Module

The NetModule Control & Visualization (C&V) Module is a high performance Single Board Computer (SBC) module aimed for the rapid development of industrial controllers with feature rich user interfaces and multimedia applications. The C&V module is ideally suited for designs with critical time to market and demanding environmental requirements.

Featuring the automotive grade i.MX35 controller, the C&V module provides the computing power to run even the most complex applications. The high speed, low latency ARM11 core combined with the integrated vector floating point unit is perfectly suited for realtime control applications. The outstanding multimedia features allow the implementation of feature rich 2D/3D user interfaces. Modern high level languages like C#, VB.NET and Java are supported.

With its wide range of interfaces, the C&V Module seamlessly connects to all common peripherals. With a 100Mbps Ethernet port and two CAN interfaces, the module perfectly integrates into industrial networks. USB host and device ports provide the means to connect a variety of off-the-shelf peripherals. Custom hardware or an FPGA can be attached to the peripheral bus.



The C&V Module comes with a bootloader and board support packages for Windows CE 6.0 and Linux 2.6.x. Production grade drivers for the onboard peripherals are included. For rapid prototyping a carrier board is available.

NetModule licenses the complete design, providing all information required to manufacture the module. This includes the schematics, layout, all fabrication files, and test programs. Thus a high degree of customers' independence is guaranteed.

The NetModule C&V Module is therefore an ideal choice for any embedded system with high performance requirements and rich user interface.

Features	
General	<p>Miniature Single Board Computer on 67.6mm x 60mm module.</p> <p>SODIMM-200 edge card connector, mates with standard inexpensive SODIMM connector (1.8V keying). Additional mounting holes for reliable attachment are available.</p> <p>Single 5.0V supply. All required voltages generated on module.</p> <p>Power consumption ~4W during full operation. Support for energy saving low power modes.</p> <p>Board layout optimized for minimal EMI (Electro Magnetic Interference) and robustness against EMC (Electro Magnetic Compatibility).</p> <p>Module pinout with large number of ground pins for improved signal integrity.</p>
CPU	<p>Freescale i.MX356 CPU running at 532MHz. ARM1136 processor core with 16kB L1 data/instruction cache, 128kB unified L2 cache, 128kB internal high speed SRAM. High performance integer and vector floating point units for industrial control and graphics acceleration. 2D graphics acceleration for feature rich user interfaces. Advanced power management for very low power consumption.</p>
Memory	<p>Up to 256MB DDR2-266 memory, 32 Bit bus (128MB default).</p> <p>256MB to 1GByte NAND Flash on 8 Bit bus. Hardware accelerated high speed access with ECC support.</p> <p>32kBit Serial EEPROM (higher capacity available upon request).</p>
Connectivity	<p>One Fast Ethernet (10/100Mbps) Full Duplex Ethernet port. PHY on module which interfaces directly with a transformer on mainboard. Ethernet MDIO PHY control interface.</p> <p>USB High Speed Host, Device or On-The-Go (OTG) port. USB Full Speed Host port.</p> <p>Two 16450/16650 compatible UARTs with FIFO. Operation up to 460kbps supported. One full featured UART with hardware handshaking and additional control signals. One standard UART with hardware handshaking. LVTTTL interfaces (*).</p> <p>I2C bus at 100/400kHz. Two SPI busses at up to 16 Mbps. Two High Speed SDHC/SDIO card interfaces up to 50MHz (*).</p> <p>Two CAN busses, compatible with CAN2.0B specification, large FIFOs for up to 64 messages, bus speed up to 1MBps (*).</p> <p>I2S or AC97 audio interface. Interfaces with audio codec/amplifier on mainboard.</p> <p>LCD/TFT video interface. 18bit (RGB666) color format, SVGA 800x600 pixel resolution, PWM signal for contrast/brightness control, LED backlight power supply.</p>
Bus Interface	<p>Multiplexed address-/databus. Easily interfaces with standard peripherals or FPGA on mainboard. 16 Bit data/16 Bit address bus. Two individually configurable chip selects. Synchronous or asynchronous mode possible. 4 interrupt inputs, 4 general purpose IOs.</p>
Misc Peripherals	<p>Temperature sensor. Range -55°C to 125°C, resolution 0.5°C, alarm interrupt.</p>
System Supervisor	<p>Power sequencing and voltage monitoring on module.</p> <p>Dedicated watchdog for improved system reliability.</p> <p>Real Time Clock with alarm function and battery backup.</p>
Debug Support	<p>JTAG and UART available on small/low cost FCC connector. Connects with debug interface board featuring standard DSub9 serial connector and 20pin JTAG header.</p> <p>Generic LED and test point on CPU GPIO pins.</p>
Environmental	<p>Storage: -40°C to +100°C.</p> <p>Operation: 0°C to 60°C or -20°C to 85°C depending on model.</p> <p>ROHS, WEEE compliant.</p>
Operating Systems	<p>Windows CE 6.0, Linux 2.6.x. VxWorks and others available on request.</p>

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