



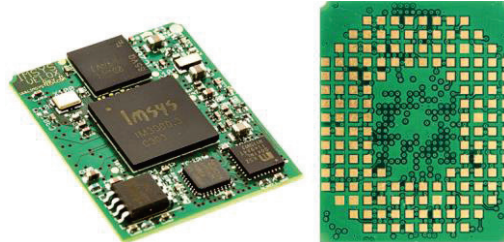
Velox™

Highly Integrated Compact SNAP Controller Module

Reduce Engineering Efforts and Time to Market

Compact Low Power Module - A Complete Platform for Java Applications

- Internet of Things
- Ethernet or Wireless
- Remote Management
- Robotics & Sensors
- M2M / Telematics Clients
- Graphical Operator Panels
- Building & Factory Automation
- Retail Automation, POS, Digital Signage
- Office and Medical Equipment
- Security & Video Surveillance



Actual size
25.4 x 31.9 mm (front and back shown)

SNAP offers a simple way of reducing design time and risk. Velox is a component suitable for automatic assembly onto customer boards, yet it is a SNAP computer module, which contains all basic hardware and software needed for communication and control. Just add your Java application.

More than ten years of experience and many product generations, influenced by our customers, have led to the introduction of this the latest product in the SNAP family. The SNAP Velox offers robust and complete single-component hardware based on Land Grid Array (LGA) technology. LGA has been found to be the most reliable surface-mount technology (SMT) for compact PCB modules having many connections. The two-dimensional LGA pattern allows for more signals without the need for high connection density, thereby offering access to all interfaces of the Imsys processor without increasing manufacturing cost or compromising reliability. Velox is ideal for OEMs needing a powerful computer-on-module for minimizing time-to-revenue.

Velox is based on Imsys native mode IM3910 Java processor. This allows user applications to run without Java byte code interpreter or JIT compiler – just copy your Java class or jar files over and run them. Firmware and application software can be uploaded and managed through the network connection. The SNAP platform contains JVM/CLDC environment with TCP/IP stack, Web / FTP / Telnet servers, device drivers for various I/O interfaces and an easy to use command line interface. The JVM encapsulates the Rubus™ real-time operating system, which is well proven in safety critical applications from Audi, BAE Systems and Volvo, and a flash file system with wear leveling and power fail recovery. The embedded Java environment greatly accelerates development and eases deployment.

Java class files generated by any Java IDE (Eclipse, Netbeans) are directly executable on the SNAP Velox. Development kit hardware and reference designs are available. The Imsys Developer (a complete IDE) can be utilized for hardware debugging and software development in Java, C and assembler, with breakpoints, dynamic variable inspection, and single step debugging at all levels.

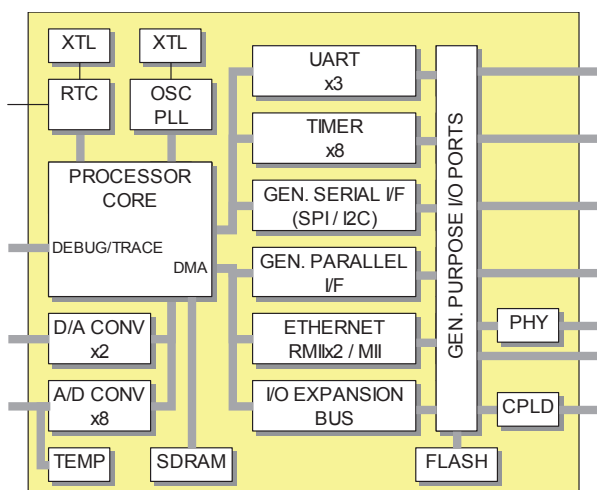
Features

- High performance multi-threaded Java execution
- Certified J2ME-CLDC Java Virtual Machine
- Enhanced performance for special functions e.g. graphics, crypto, and floating point operations
- Rubus JOS RTOS with failsafe flash file system
- MMC / SD card support
- TCP/IP stack, Web/FTP/Telnet server
- Extensive I/O functions through Java APIs, including PPP, FTP, E-mail, GPIO, Timers
- 2* / 4* / 8 Mbytes Flash memory
- 8 / 32 Mbytes SDRAM
- 10/100Base-T Ethernet MAC and PHY**
- Optional MII or 2nd RMII Ethernet interface
- Three serial ports (3.3V levels, 4-wire, 920 kb/s)
- High-speed I2C and SPI buses
- Parallel 8-bit high speed data bus
- 8 to 53 General-purpose digital I/O ports
- High I/O bandwidth (>660 Mbits/s DMA)
- Real time clock with 3V battery input
- Eight channel A/D 16-bit 44 kS/s converter with optional external reference voltage
- Two D/A 16-bit 44 kS/s converters
- 167 MHz oscillator frequency
- Commercial / Industrial* temp range
- Interface for Imsys JTAG-like Trace Adapter
- Reference designs available, complete with schematics and firmware for:
 - Dallas/Maxim 1-wire
 - CAN
 - TFT LCD, Touch panel
 - CD quality Audio

*) Optional, RFQ for volume orders

**) Variants without PHY also available

Hardware



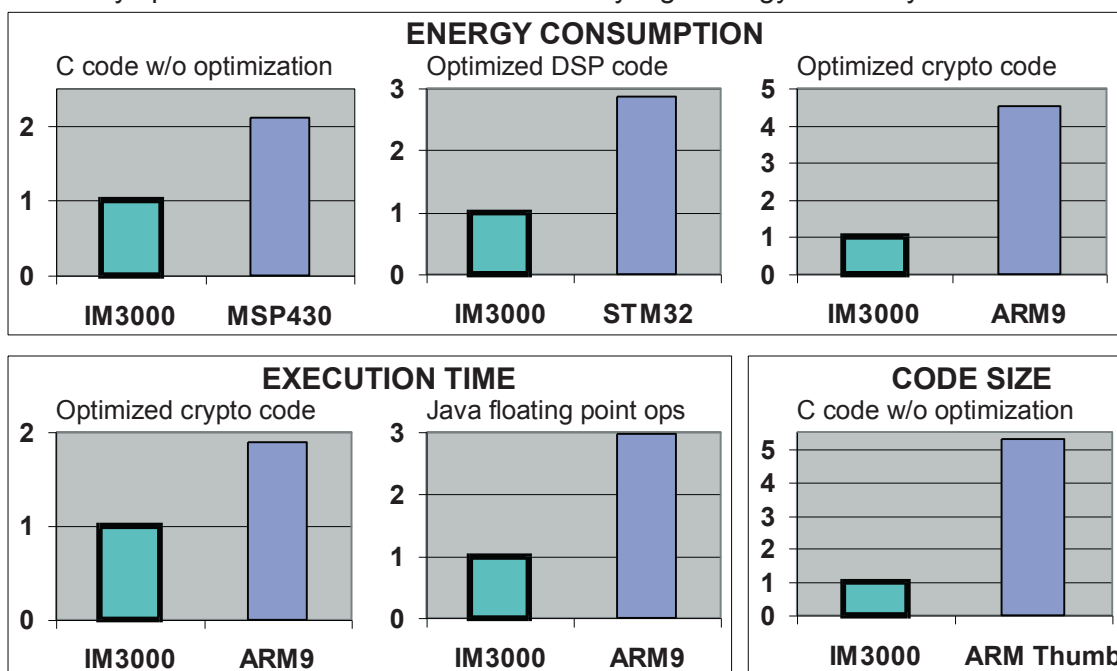
The block diagram shows the main parts of the processor IC as well as the main auxiliary components on the Velox module PCB.

The microcode inside the core controls the processor logic and hardware resources and provides the abstraction layer used by the software.

The architecture enables acceleration of CPU intensive tasks by orders of magnitude. Functions like jar file unpacking, garbage collection, bytecode interpretation, encryption, Ethernet MAC, audio playing, and video display are included in the internal processor microcode. The processor can therefore handle combinations of tasks that would otherwise require much more silicon and/or power consumption.

Benchmarks

The Imsys processor architecture has unusually high energy efficiency



Electrical and Mechanical Specifications

- Single supply voltage, 3.0 – 3.6V. (For lowest energy consumption, core can alternatively be driven by separate 1.8V supply)
- Typical active current consumption is 50 mA (est.), excluding Ethernet PHY
- Standby current consumption (refreshing SDRAM) is TBD mA
- Real-time clock current consumption 5 µA. (No current from battery when 3.3V supply is present)
- Dimensions 25.4 x 31.9 x 2 mm
- 156-pad LGA (Land Grid Array) footprint (1.8 mm pitch), for reflow soldering

Further information available on Imsys website www.imsystech.com

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