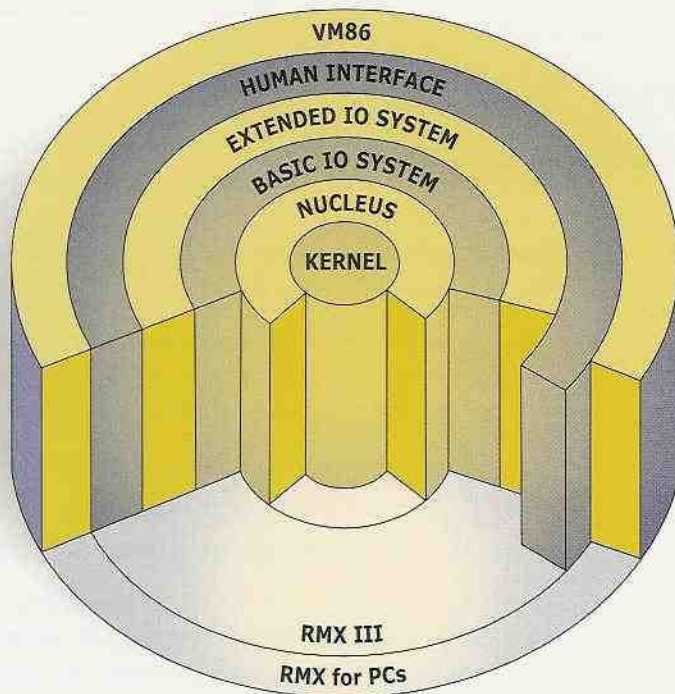


# TenAsys iRMX<sup>®</sup> III R2.3 Real-time Operating System

## TenAsys<sup>™</sup>



The 32-bit iRMX<sup>®</sup> III family of real-time operating systems gives engineers the ability to design highly reliable, real-time applications for Intel Architecture processor-based systems. These include PC-compatible, embedded, Multibus and Multibus II computers.

Figure 1. The layered architecture of the iRMX product family.

## Feature Summary

- Full 32-bit architecture, with 16-bit binary-compatibility interface for legacy applications
- Protection features that improve application reliability
- Object-orientation to simplify application design and programming
- Real-time processing to monitor and control events occurring outside the CPU
- A multiprogramming environment in which several unrelated applications can run independently
- Control of external events by interrupt processing, predictable response time and preemptive priority-based multitasking with run-time binding
- Inter-task coordination and communication, including information exchange, mutual exclusion and synchronization

## New in Release 2.3

- Nucleus Messaging Service: new subsystem to handle message passing between tasks, jobs, applications and systems.
- New TCP/IP stack, new Ethernet hardware support
- Windows NT\* cross-development environment, including Soft-Scope\* for Windows Debugger, object browser, linked via TCP/IP or serial connection
- Extended SCSI hardware support.
- Native PC peripheral driver support, including ATA and ATAPI (CDROM) interfaces. Support for SCSI CDROM devices.

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- Dynamic allocation of memory to facilitate jobs sharing resources
- Multiple layers or subsystems of the operating system, each with a set of system calls
- Concurrent execution of user applications generated with segmented or flat model compilers
- On-line help
- Communication with a wide variety of input, output and mass storage devices
- Device-independent I/O
- Full support for OSI and TCP/IP based networking
- Soft-Scope\* source-level debugger
- Support of Microsoft Visual\* C/C++ v5 and v6 flat-model applications
- Bootstrap loading and ROM support

## Technical Overview

The iRMX III operating system is designed with a layered approach. The innermost layer, the Kernel/Nucleus, provides the basic scheduling of the CPU and supports up to 256 priority levels of tasks, preemptive task scheduling, prioritized hardware interrupt scheduling, timer management, semaphores, mailboxes and other means of inter-task communication. The new Nucleus Messaging System is an optional subsystem of the Nucleus.

The next layer is the Basic I/O System (BIOS). It provides asynchronous access to the iRMX file system and any other resident configured or loadable file systems (MS-DOS, CDROM, NFS, etc). The Extended I/O System (EIOS) layer provides synchronous access to these file systems. The outermost layer is the Human Interface (HI). It provides a command line interpreter and a built-in batch mode command processing facility. Rounding out the system are the Application Loader (AL), the Universal Development Interface and the built-in System Debugger (SDB).

The iRMX III operating system includes a program called the Interactive Configuration Utility (ICU) that allows you to configure almost every aspect of the operating system. You can also use the ICU to incorporate your application into the bootable image so the system is booted as a unit.

The iRMX III operating system has been configured to a wide variety of platforms. Configurations for the following CPU boards are currently included in the product:

- PC-compatible platforms
- Multibus I platforms:  
SBC386/12, SBC386/12S, SBC486/12S, SBCPCP4DX4
- Multibus II platforms:  
SBC386/120, SBC386/133, SBC386/258, MIX486/DX2,  
SBC486/166SE, SBCP5150V, SBCP5150ISE, SBCP5200

## Network Support

The iRMX III operating systems offer a rich set of networking capabilities, enabling developers to design their applications to run on today's standard networks. In addition to RMX-NET (an OSI protocol stack), this release of iRMX III provides a new TCP/IP stack together with standard server applications including Telnet and FTP.

The TCP/IP stack is made up of separate jobs implementing the IP, UDP and TCP layers. There are new drivers for Ethernet hardware, including NE2000 compatible ISA interfaces, and PCI interfaces based on the 21143 NIC and the Intel 82258 and 82259 NICs (EtherExpress Pro/100). Configuration for this release uses the standard iRMX configuration methods: static configuration via the ICU and dynamic configuration using an initialization file.

The user's programmatic access to TCP/IP kernel functions is provided through a Berkeley-compatible Sockets library, resulting in smaller application sizes compared to previous versions.

## Order Codes

### **RMX3-DK iRMX III Development Kit**

Includes:

- iRMX III Operating System modules for all supported platforms
- iRMX III interface libraries
- Floating-point libraries
- Command line utility programs (COPY, DELETE, CREATEDIRECTORY, etc.)
- Application source examples for all layers and networking
- AEDIT Text Editor
- ANSI C compiler
- PL/M-386 compiler
- ASM386 assembler
- BND386 (linker) and BLD386 (locator+)
- Soft-Scope III multitasking source-level debugger
- Full manual set in Adobe Acrobat machine readable format
- Windows NT\* cross-development environment

### **RMX3-NL iRMX III Operating System Node License**

- (Available for multi-system development sites. This requires the purchase of one full development kit (RMX3-DK) per site.)

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