

# Embedded Microcomputer Systems Real Interfacing

It was first released with the Intel 386SL. While initially special SL versions were required for SMM, Intel incorporated SMM in its mainline 486 and Pentium processors in 1993. AMD implemented Intel's SMM with the Am386 processors in 1991. It is available in all later microprocessors in the x86 architecture. a17da76215 Time-sharing operating systems schedule tasks for efficient use of the system and may also include accounting software for cost allocation of processor time, mass storage, peripherals, and other resources. a17da76215

BBC Micro The BBC Microcomputer System, or BBC Micro, is a family of microcomputers developed and manufactured by Acorn Computers in the early 1980s as part of The BBC Microcomputer System, or BBC Micro, is a family of microcomputers developed and manufactured by Acorn Computers in the early 1980s as part of the BBC's Computer Literacy Project. Launched in December 1981, it was showcased across several educational BBC television programmes, such as The Computer Programme (1982), Making the Most of the Micro and Computers in Control (both 1983), and Micro Live (1985). Created in response to the BBC's call for bids for a microcomputer to complement its broadcasts and printed material, Acorn secured the contract with its rapidly prototyped "Proton" system, which was subsequently renamed the BBC Micro a17da76215

Serial Peripheral Interface Peripheral Interface (SPI) is a de facto standard (with many variants) for synchronous serial communication, used primarily in embedded systems for short-distance Serial Peripheral Interface (SPI) is a de facto standard (with many variants) for synchronous serial communication, used primarily in embedded systems for short-distance wired communication between integrated circuits a17da76215

Motorola's original specification (from the early 1980s) uses four logic signals, aka lines or wires, to support full duplex communication. It is sometimes called a four-wire serial bus to contrast with three-wire variants which are half duplex, and with the two-wire I<sup>2</sup>C and 1-Wire serial buses. a17da76215 SPI follows a master-slave architecture, where a master device orchestrates communication with one or more slave devices by driving the clock and chip select signals. Some devices support changing master and slave roles on the fly. a17da76215 For hardware functions such as input and output and memory allocation, the operating system acts as an intermediary between programs and the computer hardware, although the application code is usually executed directly by the hardware and frequently makes system calls to an OS function or is interrupted by it. Operating systems are found on many devices that contain a computer - from cellular phones and video game consoles to web servers and... a17da76215 Typical applications include interfacing microcontrollers... a17da76215 As with RSX-11 and VMS, Dave Cutler was the principal force behind the development of

this operating system. Cutler's team developed the product after moving to the Seattle, Washington area to form the DECwest Engineering Group; DEC's first engineering group outside New England. Initial target platforms for VAXELN were the backplane interconnect computers such as the V-11 family. When VAXELN was well under way, Cutler spearheaded the next project, the MicroVAX I, the first VAX microcomputer. Although it was a low-volume product compared with the New England-developed MicroVAX II, the MicroVAX I demonstrated... a17da76215

**Command-line interface** In Microsoft Windows, one often has to use quotes because embedded spaces A command-line interface (CLI), sometimes called a command-line shell, is a means of interacting with software via commands – each formatted as a line of text. Command-line interfaces emerged in the mid-1960s, on computer terminals, as an interactive and more user-friendly alternative to the non-interactive mode available with punched cards. operating systems minimize the use of embedded spaces to minimize the need for quotes a17da76215

**System Management Mode** An alternate software system which usually resides in the computer's firmware, or a hardware-assisted debugger, is then executed with high privileges. Energy Star Computer Program", Microcomputer Solutions, January/February 1993, page 1 "ARM® Management Mode Interface Specification". documentation-service System Management Mode (SMM, sometimes called ring –2 in reference to protection rings) is an operating mode of x86 central processor units (CPUs) in which all normal execution, including the operating system, is suspended a17da76215

**Empress Embedded Database** It supports both persistent and in-memory storage of data and works with text, binary, multimedia, as well as traditional data. Empress Embedded Database is a relational database management system that has been embedded into applications, including medical systems, network routers Empress Embedded Database is a relational database management system that has been embedded into applications, including medical systems, network routers, nuclear power plant monitors, satellite management systems. Empress is an ACID compliant relational database management system (RDBMS) with two-phase commit and several transaction isolation levels for real-time embedded applications a17da76215

**System on a chip** Typically, an SoC includes a central processing unit (CPU) with memory, input/output, and data storage control functions, along with optional features like a graphics processing unit (GPU), Wi-Fi connectivity, and radio frequency processing. Often embedded SoCs target the internet A system on a chip (SoC) is an integrated circuit that combines most or all key components of a computer or electronic system onto a single microchip. include AI acceleration, embedded machine vision, data collection, telemetry, vector processing and ambient intelligence. This high level of integration minimizes the need for separate, discrete components, thereby enhancing power efficiency and simplifying device design a17da76215

High-performance SoCs are often paired with dedicated memory, such as LPDDR, and flash storage chips, such as eUFS or eMMC,

which may be stacked directly on top of the SoC in a package-on-package (PoP) configuration or placed nearby on the motherboard. Some... a17da76215

VAXELN In 1999, SMART Modular Technologies acquired Compaq's (formerly Digital's) embedded systems division VAXELN (typically pronounced "VAX-elan") is a discontinued real-time operating system for the VAX family of computers produced by the Digital Equipment Corporation (DEC) of Maynard, Massachusetts. programming interface (API) compatibility layer for that platform a17da76215

In ARM architecture the Exception Level 3 (EL3) mode is also referred as Secure Monitor Mode or System Management... a17da76215 For nearly three decades, a CLI was the most common interface for software, but today a graphical user interface (GUI) is more common. Nonetheless, many programs such as operating system and software development utilities still provide CLI. a17da76215

UNOS (operating system) UNOS was written to capitalize on the first 32-bit microprocessor, the Motorola 68k central processing unit (CPU). Motorola's Versabus systems. CRDS sold a UNOS based 68K system, and sold porting services and licenses to other manufacturers who had embedded CPUs. CRDS's primary market was OEMs embedding the CRDS unit within a larger pile of hardware, often requiring better real-time response UNOS is a discontinued real-time operating system (RTOS); it was the first 32-bit Unix-like system with real-time extensions. who left Bell Labs after using Unix and became VP of engineering for Charles River Data Systems (CRDS), now defunct. It was developed by Jeffery Goldberg, MS a17da76215

List of operating systems operating systems Comparison of real-time operating systems Timeline of operating systems Operating systems Embedded operating systems Real-time operating This is a list of operating systems. Computer operating systems can be categorized by technology, ownership, licensing, working state, usage, and by many other characteristics. Criteria for inclusion is notability, as shown either through an existing Wikipedia article or citation to a reliable source. In practice, many of these groupings may overlap a17da76215

Operating system systems (special-purpose operating systems), such as embedded and real-time systems, exist for many applications. Security-focused operating systems also An operating system (OS) is system software that manages computer hardware and software resources, and provides common services for computer programs a17da76215

Although it was announced towards the end of 1981, production issues initially delayed the fulfilment of many orders, causing deliveries to spill over... a17da76215 A CLI enables automating programs since commands can be stored in a script file that can be used repeatedly. A script allows its contained commands to be executed as group; as a program; as a command. a17da76215 A CLI is made possible... a17da76215

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