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email: Harry@HarryNewton.com
personal web site: www.HarryNewton.com
business web site: www.TechnologyInvestor.com

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Phone 917-305-3333; Fax 212-206-0387
www.cmpbooks.com
Email: books@cmp.com

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cmp@rushorder.com

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Matt Kelsey, Publisher
Ray Horak, Senior Contributing Editor
Saul Roldan, Cover Artist
Lisa Giaquinto, Project Manager
Brad Greene, Text Layout

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ly were of this type before VGA models appeared. Digital monitors do not have as wide a range of color choices as analog types; digital EGA monitors, for example, can display just 16 colors out of a palette of 64.

Digital Multiplex Hierarchy An ordered scheme for the combining of digital signals by the repeated application of digital multiplexing. Digital multiplexing schemes may be implemented in many different configurations depending upon the number of channels desired, the signaling system to be used, and the bit rate allowed by the communication medium. Some currently available multiplexers have been designated as D1-, DS-, or M-series, all of which operate at T-carrier rates. Extreme care must be exercised when selecting equipment for a specific system to ensure interoperability, because there are incompatibilities among manufacturers' designs (and various nations' standards).

Digital Multiplexed Interface A ISDN PRI-like connection between a PBX and a computer, developed by AT&T.

Digital Multiplexer A device for combining digital signals. Usually implemented by interleaving bits, in rotation, from several digital bit streams either with or without the addition of extra framing, control, or error detection bits. In short, equipment that combines by time division multiplexing several signals into a single composite digital signal.

Digital Nervous System Coined by Bill Gates in 1997, the best definition of this term came from an interview between Gary Reiner, GE's chief information officer and a reporter from the Economist. According to the magazine, "Mr Reiner heads the company's most important initiative: 'digitising' as much of its business as possible. That not only means buying and selling most things online but, more importantly, setting up a digital nervous system that connects in real time anything and everything involved in the company's business: IT (Information Technology) systems, factories and employees, as well as suppliers, customers and products.

Digital Network A network in which the information is encoded as a series of ones and zeros rather than as a continuously varying wave — as in traditional analog networks. Digital networks have several major pluses over analog ones. First, they're "cleaner." They have far less noise, static, etc. Second, they're easier to monitor because you can measure them more easily. Third, you can typically pump more digital information down a communications line than you can analog information.

Digital Network Architecture. DNA. The data network architecture of Digital Equipment Corporation (DEC), now part of Compaq Corporation.

Digital Phase-Locked Loop A phase-locked loop in which the reference signal, the controlled signal, or the controlling signal, or any combination of these, is in digital form.

Digital Phase Modulation The process whereby the instantaneous phase of the modulated wave is shifted between a set of predetermined discrete values in accordance with the significant conditions of the modulating digital signal.

Digital Plastic A fancy term for buying goods and services on-line over the Internet using your credit card, possibly in conjunction with some verification of who you are from an independent certification authority.

Digital Port Adapter DPA. A device which provides conversion from the RS-449/422 interface to the more common interfaces of RS-232-C, V.35, WE-306 and others.

Digital Private Network Signaling System See DPNSS.

Digital Pulse Origination DPO. Equipment that sends dialed digits consisting of tones or pulses. It may be used at the central office end of a DID service connection.

Digital Pulse Termination DPT. Equipment that receives and processes dialed digits consisting of tones or pulses. It may be used at the customer end of a DID service connection.

Digital Radio Broadcasting DRB. Radio transmission intended for general reception in the form of discrete, integral values.

Digital Radio Concentrator System DRCS. A digital radio system which transmits data via a device which connects a number of circuits, which are not all used at once, to a smaller group of circuits for economy.

Digital Recording A system of recording by conversion of musical information into a series of pulses that are translated into a binary code intelligible to computer circuits and stored on magnetic tape or magnetic discs. Also called PCM - Pulse Code Modulation.

Digital Reference Signal DRS. A digital reference signal is a sequence of bits that represents a 1004-Hz to 1020-Hz signal.

Digital Selective Calling DSC. A synchronous system developed by the International Radio Consultative Committee (CCIR), used to establish contact with a station or group of stations automatically by radio. The operational and technical characteristics of this system are contained in CCIR Recommendation 493.

Digital Sequence Spread Spectrum A wireless term. An RF (radio frequency) modulation technique, which uses algorithms to code transmissions in sequential channels and then decode them at the other end.

Digital Service Cross-Connect DSX. A termination/patch panel that lets DS1 and DS3 circuits be monitored by test equipment.

Digital Set-Top Box A device that hooks up to a TV and can collect, store, and display digitally compressed TV signals. See also Digital Cable Set Top Box.

Digital Signal A discontinuous signal. One whose state consists of discrete elements, representing very specific information. When viewed on an oscilloscope, a digital signal is "squared." This compares with an analog signal which typically looks more like a sine wave, i.e. curvy. Usually amplitude is represented at discrete time intervals with a digital value.

Digital Signal Cross-Connect DSX. Also known variously as a DACS (Digital Access Cross-Connect System) and a DCC (Digital Cross-Connect), a DSX is a device that is used to connect digital circuits together. A DSX-1 interconnects DS-1 (T-1 or E-1) circuits, as DSX-2 interconnects DS-2 (T-2 or E-2) circuits, and a DSX-3 interconnects DS-3 circuits (T-3 or E-3). Digital Signal Level DS-n. A hierarchical arrangement of digital signals used in North America beginning with DS-0 (64 Kbps) up to DS-4 (274 Mbps).

Digital Signal Processor A digital signal processor is a specialized semiconductor device or specialized core in a semiconductor device that processes very efficiently and in real time a stream of digital data that is sampled from analog signals ranging from voice, audio and video and from cellular and wireless to radio and television. As opposed to a general-purpose processor, a DSP is often designed to solve specific processing problems. A DSP architecture focuses on algorithmic efficiency and may use an instruction set that is more or less tailored toward the problem the DSP is solving. General purpose processors, on the other hand, may sacrifice algorithmic efficiency for general-purpose capability and push clock-speed to achieve performance. A DSP typically has much greater mathematical computational abilities than a standard microprocessor. In some applications, like wireless, PDAs and cell phones, constraints on power consumption require performance improvements other than faster clock speed. In other applications, like cellular base stations and high definition TV, where the number of channels or the high data rate require signal processing capabilities an order of magnitude greater than general purpose processors, a DSP that uses processing parallelism can provide much higher performance much more efficiently than even the fastest general-purpose processor. A DSP often performs calculations on digitized signals that were originally analog (e.g. voice or video) and then sends the results on. There are two main advantages of DSPs — first, they have powerful mathematical computational abilities, more than normal computer microprocessors. DSPs need to have heavy mathematical computation skills because manipulating analog signals requires it. The second advantage of a DSP lies in the programmability of digital microprocessors. Just as digital microprocessors have operating systems, so DSPs have their very own operating systems. DSPs are used extensively in telecommunications for tasks such as echo cancellation, call progress monitoring, voice processing and for the compression of voice and video signals as well as new telecommunications applications such as wireless LANs and next-generation cellular data and cellular Internet services . They are also used in devices from fetal monitors, to anti-skid brakes, seismic and vibration sensing gadgets, super-sensitive hearing aids, multimedia presentations and desktop fax machines. DSPs are replacing the dedicated chipsets in modems and fax machines with programmable modules — which, from one minute to another, can become a fax machine, a modem, a teleconferencing device, an answering machine, a voice digitizer and device to store voice on a hard disk, to a proprietary electronic phone. DSP chips and DSP cores in custom chips are already doing for the telecom industry what the general purpose microprocessor (e.g. Intel's Pentium) did for the personal computer industry. DSP chips are made by Analog Devices, AT&T, Motorola, NEC and Texas Instruments, among others. DSP cores are made by BOPS, DSP Group, Infineon and others.

Digital Signature A digital signature is the network equivalent of signing a message so that you cannot deny that you sent it and that the recipient knows it must have come from you. In short, a digital signature is an electronic signature which cannot be forged. It verifies that the document originated from the individual whose signature is attached to it and that it has not been altered since it was signed. There are two types of digital signatures. Ones you encrypt yourself and are the result of an ongoing relationship between you and the other party. Second, there are encrypted certificates issued by a com-

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