Olivetti OH 5400, OH 5480, OH 5490, and OH 6480 Series

MANAGEMENT SUMMARY

In June 1982, Olivetti Computers S.p.A. was merged into its parent company Ing. C. Olivetti & Co. S.p.A. Olivetti is Europe's largest indigenous office automation and computer manufacturer, and in 1984 made net profits of 356 billion Lire, representing a significant increase on 1983 profits. Turnover in 1984 amounted to 4578 billion Lire.

Olivetti markets the OH 5400 Series, OH 5480 Series, OH 5490 Series, and OH 6480 Series mainframes, a group of IBM plug-compatible processors that are manufactured by Hitachi. The range of compatibility of the OH 5400 models falls between the IBM 4341 and IBM 3083. The OH 5480 singleprocessors are compatible with the IBM 4381 and 3083, and the OH 5480/8MB and OH 5480/10MP dual processor systems are compatible with the IBM 3081. The uniprocessor OH 5490 models, the 5490/7, 5490/9, and 5490/11, are compatible with IBM 3083 processors, while the dual processor 5490/9MP and 5490/11MP are compatible with the 3081. The OH 6480/300 and 6480/600 are compatible with the IBM 3090 Models 200 and 400 respectively.

The four CPUs of the Olivetti mainframes are fully compatible and can operate under the following IBM System Control Programs: DOS/VSE, MVS/SP, and VM/SP. In addition, a wide variety of microcoded features and assists have been designed to enhance the performance of the System Control Programs. The modular design of the machine enables users to choose a wide selection of memory and channel configurations within each model.

The **OH 5400 Series**, which consists of four models: the OH 5430, OH 5440, OH 5450, and OH 5460, can accommodate medium users in the areas of business, data base/data communications, interactive and scientific applications. Each of the four models can be upgraded on-site without involving substitutions of equipment or disruption of service to users. ▷

Olivetti's OH 5400, 5480, 5490, and 6480 Series are plug-compatible systems and are manufactured by Hitachi.

MODELS: OH 5400 Series—5430, 5440, 5450, and 5460; OH 5480 Series—5480/4Z, 5480/4V, 5480/4, 5480/6, 5480/8, 5480/10, 5480/8MP, and 5480/10MP; OH 5490 Series—5490/7, 5490/9, 5490/11, 5490/9MP, and 5490/11MP; OH 6480 Series—6480/300, and 6480/600.

CONFIGURATIONS: OH 5400 Series—8M to 16M bytes of main memory, attachment of up to 12 channels; OH 5480 Series—16M to 128M bytes of main memory, attachment of up to 24 channels; OH 5490 Series—8M to 64M bytes of main memory, attachment of up to 48 channels; OH 6480 Series—32M to 256M bytes of main memory, attachment of up to 64 channels.

COMPETITION: OH 5400 Series—IBM processors between the 4341 and 3083; OH 5480 Series—IBM 4381, 3083, 3081; OH 5490/7, 5490/9, and 5490/11 (uniprocessors)—IBM 3083 processors; OH 5490/9MP and 5490/11MP (multiprocessors)—IBM 3081; OH 6480 Series—IBM 3090/200 and 3090/400.

CHARACTERISTICS
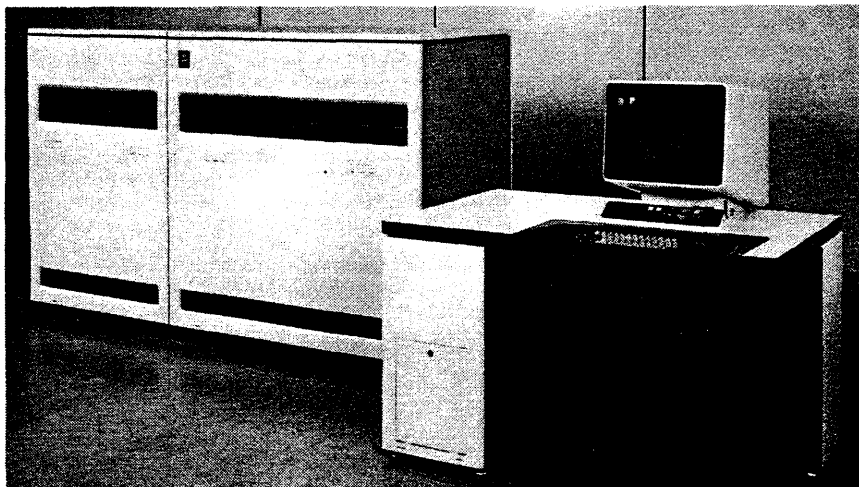
The OH 5460 system is oriented toward medium users in realtime, business and scientific applications.

▷ Through the use of high speed VLSI circuits with densities of up to 1500 gates per chip, compact systems have been created which require less power and less space. For example, configurations of the OH 5440 (up to 16 megabytes) require only 0.96 m² of floor space.

All models within the OH 5400 Series are equipped with a minimum of 8 megabytes of main memory, expandable to 16 megabytes, and can support between 5 and 12 channels.

The **OH 5480 Series** consists of eight models: 5480/4Z, 5480/4V, 5480/4, 5480/6, 5480/8, 5480/10, 5480/8MP, and 5480/10MP. The 5480/8MP and 5480/10MP are dual processor models.

The models differ from one another in the areas of buffer (cache) size, pipeline control, and performance. The OH 5480 is a high-performance, general-purpose processor designed for large-scale on-line processing for business and scientific applications. According to Olivetti, high performance and the improvement of reliability and maintenance have been achieved through advanced logic design and newly developed hardware technology. Future needs of users can be accommodated through the expandability of the system.

Configurations for the OH 5480 Series are as follows: on the single processor systems, the 5480/4Z, 5480/4V, 5480/4, 5480/6, 5480/8, and 5480/10, maximum main memory is 64 megabytes, and the maximum number of channels that can be attached is 24. The 5480/8MP and 5480/10MP dyadic processors can support up to 128 megabytes of main memory and 24 channels in each processor. Model 10 is additionally equipped with 256 kilobytes of buffer store. Models 6 and 8 are equipped with a buffer store of 64 kilobytes, while Models 4Z, 4V, and 4 all have 32 kilobytes of buffer store.

The **OH 5490 Series**, which consists of Models 7, 9, and 11, is a high-performance, general-purpose processor that is appropriate for large-scale, on-line processing for business and scientific applications. The OH 5490 is a high-end successor to the OH 5560 which is no longer being marketed. Allowances have been made in the processor and through optional features for expansion of the system to meet future needs. Models 7, 9, and 11 provide Main Storage capacities of 8, 16, 24, 32, 48, and 64 megabytes. A total of 24 channels can be attached to each of the models in the 5490 Series. The 5490/9 and 5490/11 are available in dual processor configurations, termed the 5490/9MP and 5490/11MP, respectively.

High-density, high-speed LSIs used extensively throughout the major portions of the processor can accommodate a maximum of 550 gates (400 circuits) per chip. The Main Storage in a uniprocessor configuration has an 8-way interleaved structure. In an Attached Processor/Multiprocessor arrangement, Main Storage structure is 16-way interleaved.

The **OH 6480 Series**, which consists of the 6480/300 and 6480/600, are top-of-the-line systems that provide large-scale processing facilities and extensive growth paths. Each of the two models contains a number of processors for different activities, such as Instruction Processor, Input/ ▷

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Olivetti also has subsidiaries in the following countries: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Denmark, Finland, Greece, Hong Kong, Japan, Malaysia, Mexico, The Netherlands, Norway, Panama, Peru, Portugal, Puerto Rico, Singapore, South Africa, Spain, Switzerland, Uruguay, USA, and Venezuela.

MODELS: OH 5400 Series—OH 5430, OH 5450, and OH 5460, all of which are plug-compatible with IBM processors between the IBM 4341 and 3083; OH 5480 Series—Models 4Z, 4V, 4, 6, 8, and 10, all of which are compatible with the IBM 3083, and Models 8MP and 10MP which are compatible with the 3081; OH 5490 Series—Models 7, 9, and 11, of which Models 7 and 9 in a uniprocessor configuration are compatible with IBM's processors from the 3083 to 3081G. Models 9 and 11 in multiple processor configuration are compatible with the IBM 3081 and 3084; OH 6480 Series—6480/300 and 6480/600 which are compatible with the 3090/200 and 3090/400, respectively.

OH 5400 SERIES

Central Processing Unit

The three subelements incorporated into the Central Processing Unit are the Basic Processing Unit, Storage Control Unit, and the Service Unit.

The Basic Processing Unit, the system's Central Processor, provides the functions necessary for high-speed processing and for the system's controls. It is composed of the following major elements: Instruction Unit, Execution Unit, and Reloadable Control Storage. The Instruction Unit handles instruction fetching and decoding for the Execution Unit which carries out instructions at the speed of the processor's cycle time which is 60 nanoseconds for the OH 5430 and 5440, 50 nanoseconds for the 5450, and 47 nanoseconds for the 5460.

The microcoded control programs essential to the control of systems' operation are located in Reloadable Control Storage (RCS). The RCS feature is also used during maintenance and diagnostic execution for holding designated microdiagnostic programs.

The High Speed Arithmetic feature heightens the performance of the Basic Processing Unit during the execution of scientific application programs. The Storage Control Unit regulates the access of data to and from main storage for the BPU and the High Speed Buffer. The required circuitry for interfacing and controlling access to and from the High Speed Buffer is also contained in the Storage Control Unit.

Main Storage

The Main Storage (MS) consists of high-speed monolithic 256KB N-MOS chips with a read/write cycle time of 150 nanoseconds. Data access is improved through the use of 2-way interleaving techniques and an access width of 8 bytes. System Control Programs with virtual memory capabilities of up to 16 megabytes can be supported by the OH 5400 Series. The management of virtual addresses is implemented either by the Dynamic Address Translation feature or by the microcode residing within the Reloadable Control Storage in ECPS:VSE mode.

High Speed Buffer

The High Speed Buffer consists of high-speed bipolar memory elements, an address array, and a replacement array. Each of the four models in the OH 5400 Series is equipped with a high-speed buffer capacity of 64KB.

Input/Output Channels

Two types of input/output channels are provided. The first, the Byte Multiplexer Channel, exists for the most part for ▶