Megadoc
System Description

Megadoc is a digital storage and retrieval system based on Digital Optical Recording (DOR). It allows data to be entered, either by optical scanning of printed documents or from Philips word processors. Pages are therefore stored either as digitalised images or as alphanumeric data. Documents can have any format up to DIN A4 (210 x 297 mm) or American letter format (8.5 x 11").

Megadoc systems can be configured with single DOR units, each having a storage capacity of 1,000 M user bytes per disc side, or around 'jukeboxes' which can accommodate up to 64 discs. In the former case disks can be changed manually; the latter changes the discs automatically, giving on-line access to 128 G bytes of data per jukebox.

A complete Megadoc system can be built up from the following peripherals and expanded in line with growth requirements:

- DOR drive
- High-speed image scanner
- High-speed image printer
- High-resolution image display
- Jukebox DOR disc changer

The file server for these peripherals is a model of the P4000 series. The configuration varies with the application, but basically includes magnetic disc storage for input and output buffering plus keyboards and VDUs for entering commands, document descriptions and keywords. Workstations for the system can be input/retrieval or just retrieval. Per input workstation (consisting of a scanner, an image display and a keyboard with normal visual display unit) up to 2000 documents per day can be captured and described. A retrieval workstation (an image display and a keyboard with visual display unit) allows for a page to be retrieved in under 2 seconds (if a disc exchange in the jukebox must be made the figure is 20 seconds).

The maximum number of workstations depends on the system work load, but is generally around 12.

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Software

Megadoc's software is part of the Philips file server Office Automation Monitor, which is based on the P4000 operating system called DINOS (Distributed INteractive Operating System). Its main components are:

- Megadoc data management and document handler; an access method to the various Megadoc peripherals, allowing them to be used by any application program

- Megadoc input/output; a set of application programs for data capture, validation and archiving plus document output and display

- ISR (Information Storage and Retrieval) customised according to user needs and allowing among others:
  - documents to be described in keywords and/or reference data
  - documents to be retrieved via references or cross references or via sets of keywords with logical operators.

Description of the Megadoc peripheral devices

Digital Optical Recorder (DOR)

DOR is the heart of a Megadoc system. It basically comprises the optical disc, the drive and read/write servo mechanics and the laser optics. DOR can be either a stand-alone unit, where discs are changed manually, or DOR can be incorporated in a 'jukebox', where up to 64 discs can be changed automatically.

Performance: disc

- capacity per disc side : 1,000 M user bytes
- nr of tracks : 32188
- track capacity : 32 K user bytes

The 10-year archival life of a disc is defined as:
- minimum user life after production: 2.5 years (write and read functions)
- minimum archival life after user life:
  7.5 years (read functions only)
The DOR discs are protectively housed in a cartridge.

Performance: DOR drives

- access time: minimum: 100 msec
               average: 137.5 msec
               maximum: 225 msec
- latency: 62.5 msec
- throughput: 250 K bytes per second
- stop time and spin-up time: 5 sec
- weight: max. 170 kg
- size: 60 x 130 x 83 (w x h x d)
- power consumption: 750 W max.

Interface:

- CDC Intelligent Standard Interface (ISI), standard version, only single channel
- length: 15 meters max.
- 8 drives max. can be connected via a daisy chain to the CDC-ISI interface to the control unit.

Type numbers:

PM 110-1 DOR drive stand-alone
PM 110-2 DOR drive in jukebox
PM 119   Control unit for PM 110-1 and PM 110-2

High-speed image scanner (HSIS)

The HSIS scans information as present-

ed in image form on a page. The scan resolution is based on CCITT group 3 HR mode recommendations.
Data compression is performed in the control unit.

Performance:

- speed : 20 pages per minute by means of a semi-automatic paper feed, which allows pages to be adjusted automatically or inserted manually. Thus, single pages from for example a book, can be scanned as well.
- paper : all sizes can be handled up to A4 (210 x 297 mm) and American letter size (8.5 x 11")

- load : 30,000 pages per month
- stacker : 100 pages capacity
- contrast : scan contrast can be user-adjusted to 12 levels
- weight : 85 kg
- size : 70 x 110 x 81 cm (w x h x d) (excluding paper racks)
- power consumption : max. 200 W (including paper handling)

Interface:

- dedicated Philips 16 bit parallel interface (Quibus)
- length 30 meters max.
- 2 HSIS's can be connected to a HSIS control unit

Type numbers:

PM 130 High-speed image scanner
PM 139 Control unit for HSIS

High-speed image printer (HSIP)

The function of the HSIP is to print images, the print resolution is equal to that of the scan resolution of CCITT group 3 HR mode. Data decompression is performed in the control unit.

Performance:
- speed : 20 pages per minute
- paper : plain paper
- paper size : A4 (210 x 297 mm) or American letter size (8.5 x 11")
- load : 25,000 pages per month approx.
- hopper/ stacker : each has 500 page capacity
- weight : max. 100 kg
- dimensions : 50 x 100 x 100 cm (w x h x d)
- power consumption : 300 W

Interface:

- data Products 8 bit parallel interface
- length 60 meters max.
- up to 2 HSIP's can be connected to a HSIP control unit

Type numbers:

PM 150 High-speed image printer
PM 159 Control unit for HSIP

High resolution image display

The function of the HR display is to visualize images. The bit stream to the HR displays is decompressed in the control unit.

The HR display is housed in two cabinets, a table-top cabinet that houses the monitor and screen and a second cabinet that houses the logic. The latter can be located on the floor or table.

Performance:

- 15" screen
- the screen shows 2280 lines each of 1728 pixels
- the display includes a refresh memory
- refresh rate about 90 Hz interlaced eliminates flicker
- black and white
- weight: monitor cabinet 15 kg logic cabinet 50 kg
- power: 200 W max.
- dimensions: monitor cabinet 20 x 45 x 55 cm (w x h x d) logic cabinet 50 x 60 x 40 cm (w x h x d)

Interface:

- dedicated Philips 16 bit parallel interface (Quibus)
- length 30 meters max. standard; optional 200 meters.
- 3 HR displays can be connected to a HR display control unit.
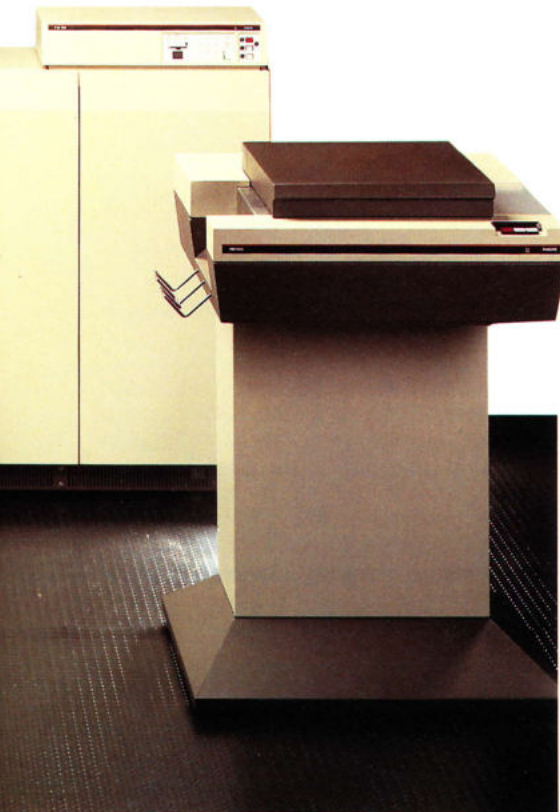
Type numbers:

PM 170-1 High-resolution image
display
PM 170-2 Remote HRID
PM 179-1 Control unit for PM 170-1
PM 179-2 Control unit for PM 170-2

Jukebox

Basically the jukebox extends the direct
access facilities of the Megadoc system
from a single disc to 64 discs. Thus
instead of having direct access to a
single 1,000 M byte disc side that must
be changed manually, users can have
direct access to 128,000 M bytes of
storage capacity on 64 discs that are
changed automatically.

Performance:

- 64 discs max. per jukebox
- two selector mechanisms to the 64
discs
- a selector mechanism can serve one
or two PM 110-2 drives
- maximum access time of 20 seconds,
including stopping and starting the
DOR drive
- the jukebox is field upgradable from
one to four DOR drives
- dimensions (including the DOR's) 210
(h) x 150 (w) x 250 (l) cm
- power consumption 2500 W max.

Interface:

- V24 DC interface

Type numbers:

PM 190 Jukebox
PM 199 Jukebox control unit

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