PMS workstation requirements

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Product range

- Easyvision R/F (digital II based X-ray: RF, vascular, cardio)
- Easyvision CT/MR
- Easyvision Rad (digital, or digitized film)

The range of applications will grow in the future, possible extensions include:

- Extreme low cost viewstations (“lightbox” on physician desk).
- Dedicated servers (for instance archive, hardcopy)
- Advanced workstations (for instance 3D, surgical navigation)

Requirements are formulated for mid 1995
CPU and memory

- 100 specInt92

  Higher specInt92 -> Higher functionality, without additional dedicated hardware

- 32 MByte, extendable to 512 MByte, in 32 MByte steps

- 500 MByte disk, >1 GByte disc(s) optional
Interfaces

• Ethernet

• optional ATM (FDDI?)

• SCSI-2, fast, byte wide

• optional Fiber Channel Interface, will become standard

• 2 RS232, 1 keyboard mouse interface (ACCESS?)

• minimum 2 extension slots (PCI), these slots are free if all mentioned non-optional interfaces and the framebuffer are present
Price (OEM quantaties)

- CPU+interfaces+box+32 MB+0.5 GB+16”monitor:
  
  4 k$ (low end) (strategy unknown -> # unknown)

  6 k$ (EV CT/MR, EV R/F, EV rad) (# = hundreds)

  10-15 k$ (advanced WS) (# = tens)
Framebuffer

- $1280\times1024^*(\text{minimum 8 bit; more bits 12, 16? for pseudocolor support will become required})$;

$2500\times2000$ for high end products

multiple framebuffers (2, max 4) for review, teaching and demonstration systems

- minimal update rate $25$ frames/second; $30$ MByte/s

- greylevel and color support

- $76$ Hz refresh rate
Packaging

• Self-sustained unit (power, cooling, EMC shielding)

• Board level products in a later phase; mainly for cost reduction.
Software

- UNIX

- X-windows, access through X-server should support 30 MByte/s frame update rate, without monopolizing the CPU or system bus. (a lower spec forces the bypass of the X-server)

- asynchronous I/O, for all I/O including process communication, network I/O etc.

- XDR library (CPU independent streaming)

- notifier library, to synchronize timers, asynchronous I/O and socket I/O

- Real time process control

- TCP/IP, sustained transfer rate on ethernet >500 kByte/s

- DECnet support (separately licensed)

- customizable SCSI control

- customizable RS 232 event generation
• customizable boot and start-up procedure (embedded system)

• diagnostic software for workstation and standard computer peripherals

• development environment for Objective-C

• JPEG library