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TO: Distribution

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SUBJECT: Macintosh (Multimedia) Imaging Market....

At the request of Cynthia Keen (Visual Communications Market Segment team), I have put together an outline of a product strategy for the Macintosh II imaging market.

There is a need for medium resolution (1280X1024) input products which would fill the gap between video(640X480) and hi-res (2048X3072). They would offer real time viewing for composition, almost instant capture and a way to get images with enough resolution to fill the 19" monitors.

Applications:

Broadcast/Video production, Training, Presentations, Publishing, Scientific Imaging, Engineering, 3D Modeling.

I. Input Products- There is a need for medium resolution (1280X1024) input products at a price between video (640X480) cameras and hi-res (2048X3072) scanners.

A. Current Products

1. Transfer Stand - replace current camera with RGB (JVC). Provides interim product with enough resolution for standard Mac displays and broadcast applications.
2. Slide to Video Unit - Add features to a version of the SV630 Mac software to control SV5035 input to printer framestore.
3. Offer packages with SV6500 and SV630 Bidirectional IF & software and either one of the above input sources.

B. New Products

1. Develop Megapixel camera head and electronics, also design a Framestore for Megapixel Display/Sequential Capture. Board is digital only, provides non-interlaced 1280X1024, high frequency display on 19" high resolution monitors like the Sony, Hitachi, or Ikegami.
2. Put Megapixel camera head on transfer stand, use color filter wheel for full RGB resolution. A spinning color filter wheel and a color sequential digital interface directly to hi-res framestore would allow full color real time composition and capturing an image would happen in a fraction of a second.
3. Remove all video I/O and manual controls from SV5035, reduce size, replace imager with Megapixel, use color filter wheel for full RGB resolution, Color sequential digital interface, software for controlling zoom, crop and capture. A spinning color filter wheel and a color sequential digital interface directly to hi-res framestore would allow full color real time composition.
4. Simple slide scanner, a box with slot for single slide, illuminator, and megapixel imager. Color sequential digital interface and software for capture. Again uses color filter wheel for full RGB resolution.
5. Megapixel Ramcard camera and Ramcard Interface for the Mac. Would allow remote and studio capture of images.

II. Output Products

A. Current Products

1. SV6500 need to get SV630 bidirectional IF and software to market, advertise in Mac trades and demonstrate at Mac shows. Big potential for printer in this market.

B. New Products

1. Develop 4x5 printer, with SCSI interface, and 1280X1024 resolution output.
No video interface, no manual interface, strictly digital product. Output matched to megapixel imaging products. Software drivers.
2. Develop 35mm slide thermal printer, again a strictly digital product with SCSI interface.
1280X1024 resolution matched to megapixel imaging products. Software drivers.
3. Large format printer - Need Software drivers. Need Postscript Rasterizer.
Need to accept Mac file formats. Need to provide a way to use the printer on a LAN (i.e. Localtalk, Ethernet).

A Complete input/output workstation provided by us would help ensure that the input image, the screen image, and the thermal print would all be well characterized so that as best as possible, WYSIWYG (What You See Is What You Get.).

III. Compression/Transmission Technology

A. Current Products - No current fit with standalone, video resolution transmission products. Too expensive, not high enough resolution for the buck.

B. New Products

1. Develop compander board for Mac II - In addition to the 5 current levels of compression, an algorithm for conversion from 24bit images to 8bit images with a visually pleasing dithering is needed. (Apple algorithm?) Compander board could also provide image processing horsepower for workstation. Subsampling, image enhancement, image rotation, bilinear interpolation, etc.
2. Develop an application or preferably a "system" that allows dial-up remote access to large databases of images, ie. Eastman House Archives, Smithsonian, Federal Gov't, Drivers license and ID applications, etc.
Utilizes Kodak optical disk, Discus software?, EPD compression, EPD workstation for input, output and remote access. Need to integrate or have this integrated to provide a turnkey solution.
PPD has much interest in this area, specifically with their photo stockhouse customer, Image Bank.
3. Encourage discussions with Apple and maybe AT&T regarding compression and ISDN. Apple's multimedia technology will require being able to move lots of high res images quickly from location to location. We should be a key player in this arena.
4. Framestore - 24bit Video Display and Capture cards are becoming available from a variety of manufacturer's. (i.e. RasterOps 324 capture card, RasterOps 64 display card, Data-Translation's ColorCapture, Mass Micro Colorspace II and FX board, Truevision NuVista, AST NuView, etc.) It would be difficult to compete with these products. We do however have the Megapixel imager and we should develop a color sequential capture and display board for the imager. It would have a digital interface for the camera and an output to drive a hi-res 19" Sony or Hitachi Monitor at 1280X1024X24 bits. It would provide real time monochrome display, for focusing, from the Megapixel Transfer Stand or the Megapixel Slide to Video Unit or the Megapixel Slide Scanner.

5. Software - This is key, we need an integrated solution to tie all of our products together. This software should be in the form of an application shell that provides some minimal image processing capabilities such as sharpening, color and tone scale correction, and subsampling, averaging or interpolation of images to a variety of resolutions. The Compander card could provide accelerated performance for most of these tasks as well as providing image compression and expansion. (The design of the compander must allow operation in this manner.) The shell application would also allow control of any of EPD's current and future products, including input, such as the Megapixel scanners and Megapixel capture board and output such as the thermal 4X5, large format, or slide printer as well as third party product such as scanners and printers. Transmission also would be a feature supported with the addition of a modem, ISDN board, or other communication board.

The program would be modular allowing new products and features to be added. Silicon Beach's new HyperCard like product, SuperCard looks like it could provide all of the above and allow it to be put together in a reasonable amount of time.

6. Systems - We should consider being a true Apple VAR, and sell total systems consisting of a totally configured Mac II, monitor, the necessary boards for the customers' application, input and output peripherals and interfaces and the software to provide a complete turnkey solution. Also software tools should be provided for third party developer's and VAR's to utilize in interfacing our products to their systems.

OTHER COMMENTS:

This is a currently empty niche in the computer imaging market. There are two distinct capture resolution niches, video resolution devices and scanners.

Video resolution is limited to 768X484 Max. and the expensive scanners generally provide 2000 or 3000 pixel resolution with lengthy scanning times and no preview of the image prior to scanning. Images of these resolutions are usually difficult to manage and sometimes impossible to display unless you have at least 8 megabytes of RAM.

A Megapixel workstation would provide a new solution, featuring:

1. An input system with more than four times the resolution of video
2. An hi-res input system with a real time color display for composition
3. An image large enough to fill the largest displays available for the Mac
4. An input system capable of providing four-up images on large format prints
5. A workstation that provides control over input/output color matching.
6. A workstation that will allow remote access of image databases and powerful image manipulation capability with the optional compander.

If the pricing of the Megapixel input products came in close to or less than the scanning products, (\$4-6000 for the camera head and ~ \$8-10,000 for a transfer stand) they WILL be extremely successful in the desktop publishing, presentation, training, and scientific/engineering (Megapixel camera head for microscopes) segments. If complete workstations were to be configured they would probably range from \$15,000 to \$40,000 depending on the input and output options and the computer configuration.

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