

KODAK MEMO

January 22, 1988

TO:

TO: Brad Paxton
FROM: Pete Sucy, Technician, Adv. Dev. D681, 3-1-EP
SUBJECT: PHANTOM 5 Year Plan

Enclosed is your copy of the Phantom 5 year plan as referred to in the Profs note from Carl. This is a newly updated revision (1-22-88).

This is exciting stuff, I hope you enjoy it!

PJS:pjs

Enc.

Pete —

a beautiful job of progressing an
approach to the digital age for EPD

Thank,

Brad

P.S.

what about: , EDTV (S-VHS, ED²)
 , V/C inputs / outputs
 . hi bond SVF
 ! ? ,

cc Arnold
Schuffele

PS: I believe I told hm that I thought they were irrelevant,
because I felt computing would set the imaging standards.

PHANTOM 5 YEAR PLAN FOR CAPTURE

	1988	1989	1990	1991	1992
TRANSFER STAND	DPTS Provides Hi-res NTSC Transfers from Prints & Slides. 640 X 484 X RGB pixel resolution NTSC - Y-C - RGB - SCSI	DPTS w/dither (4X) Provides Hi-res NTSC and Computer Transfers from Prints and Slides. 1280 X 968 X RGB pixel resolution for computer transfers. 640 X 484 X RGB pixel resolution for NTSC transfers NTSC - Y-C - RGB - SCSI	MegaPixel DPTS <i>Provides Hi-res Transfers of Slides and Prints to Computer</i> 1280 X 1024 X RGB pixel resolution	MegaPixel DPTS w/dither (4X) Provides extremely hi-res Transfers of Slides and Prints to Computer 2560 X 2048 X RGB pixel resolution	
SLIDE TO VIDEO (using Carousel tray)	CPD Carousel Device Provides medium quality NTSC transfers from slides to video. 570 X 484 pixel resolution 3G CFA RS-232 for Control RGB and NTSC Outputs	Hi- Res Carousel Device Provides Hi-res NTSC transfers from slides to video 640 X 484 X RGB pixel resolution NTSC - Y-C - RGB - SCSI	Hi-Res Carousel Device w/dither Provides NTSC and extremely hi-res Computer transfers from slides 1280 X 968 X RGB pixel resolution	Mega Pixel Hi-Res Carousel <i>Provides Hi-res Transfers of Slides to Computer</i> 1280 X 1024 X RGB pixel resolution	MegaPixel Hi-Res Carousel w/dither (4X) Provides extremely hi-res Transfers of Slides to Computer 2560 X 2048 X RGB pixel resolution
CAMERA	SY8300 Still Video Camera (1B)	NTSC RAM Card Camera NTSC Quality 25 images/card compressed 640 X 484 pixels B&W or 3G CFA 250 Kbits/image (compressed) 24 images = 6 Mbits		MegaPixel RAM Card Camera Hi-res NTSC or computer 1280 X 1024 pixel 3G CFA (IRIS)	
CAMERA HEAD	ID1810 CCD Color Camera 570 X 484 pixel resolution 3G CFA NTSC output PPD VIS Camera 570 X 484 pixel resolution 3G CFA NTSC output	Computer Res Camera Head 640 X 484 pixel resolution B&W or 3G CFA RGB or optional NTSC output		MegaPixel Camera Head 1280 X 1024 pixel resolution B&W or 3G CFA RS-343 RGB 1280 X 1024 70 KHz output	

← LINEAR SCANNER? →

ISSUE: No input device to support the Large Format Printer resolution.

PHANTOM 5 YEAR PLAN FOR HARD COPY

	1988	1989	1990	1991	1992
MEDIUM FORMAT	SY6500 512 X 512 NTSC/RGB		GEN. 2 SY6500 Improved quality, lower cost Max. res. 1280 x 1024 1:1 or 4:3 - 512 X 512 4:3 - 640 X 480 (sq. pixels) 4:3 - 768 X 484 NTSC-Y-C-RGB & SCSI INTERFACES FINISHERLESS, FASTER	CONSUMER VERSION? 1280 X 1024 FOR ESC?	
LARGE FORMAT		FSD Multi-Format Printer 2048 X 2048 (11" x 11") Prints and Transparencies (Digital IF only). EPD 8.5 x 11 Printer 1536 X 2048 (8.5" X 11") Prints and Transparencies (Digital IF only).		Market Driven Next Gen. Multi-Format Printer 8192 x 10240 max. resolution 8.5" x 11" Print and Transparencies (Digital IF only) Many Markets and Technologies, where do we want to be?	
35mm		35mm Thermal Head Printer Produces a 30 x 40mm transparency in 2 x 2 mount (16 dots/mm) 1:1 or 4:3 - 512 X 512 4:3 - 640 X 480 (sq. pixels) 4:3 - 768 X 484 NTSC - RGB & SCSI INTERFACES User interface same as 4 x 5 SY6500	35mm Blue Field Slide Printer 50 dots/mm. If size = 24 x 36mm, i.e. 35mm size resolution = 1200 x 1800 dots (Uses laser technology) SCSI INTERFACE	High Resolution 35mm Printer 2560 x 1920 max. resolution Produces a 24 x 32 mm transparency in 2 X 2 mount. (80 dots/mm) (Digital IF only)	
MEDIA		8 1/2" X 11" Transparency 8 1/2" X 11" Reflection Print B&W Donor 11 X 11 35mm Transparency	Blue Field Slide Media		

PHANTOM 5 YEAR PLAN FOR STORAGE & RETRIEVAL

	1988	1989	1990	1991	1992
SDR <i>SVF BASED</i>	SELL SY7400 NO CHANGES				
MDR <i>SVF BASED</i>		GEN. 1A ♦ SINGLE TRACK ERASE ♦ NEW FRONT PANEL CONTROLS ♦ ONE TRACK OF AUDIO PER IMAGE NO VIDEO INTERRUPTION ♦ UNLIMITED AUDIO PER IMAGE WITH VIDEO INTERRUPTION TO RETRIEVE EACH TRACK.			
DIGITAL STORAGE DEVICE			COMPRESS OPTION STORES >1500 640 X 484 IMAGES COMPRESSED (58 Mb) >50 640 X 484 IMAGES UNCOMPRESSED (46 Mb) 768 X 484 640 X 484 512 X 512 1280 X 1024 (or any other resolution image via the scsi interface when connected to a computer) BUILT-IN FRAMESTORE <1 SEC. ACCESS & DISPLAY NO BLANKING AUDIO RAM CARD INTERFACE OPTION RGB & NTSC IN & OUT SCSI INTERFACE BACKUP USING OFF THE SHELF TAPE BACKUP SYSTEMS (I.E. 8MM, RDATA, STREAMING TAPE, ETC.) TRANSMISSION OPTION CAN BE ADDED		

PHANTOM 5 YEAR PLAN FOR TRANSMISSION

	1988	1989	1990	1991	1992
STAND ALONE		GEN. II KSYX (AC Powered Base Unit) RGB Framestore 1:1 or 4:3 - 512 X 512 4:3 - 640 X 480 (sq. pixels) 4:3 - 768 X 484 NTSC - Y-C - RGB - SCSI 19.2 Kbits Modem (30 sec Xmit) Full/Half Duplex ISDN compatible @ 64 Kbits		GEN. III KSYX Redefined as dictated by market needs. New features? Otherwise same technology as GEN. II	
		PORTABLE TRANSMITTER (Battery Powered Portable) Transmit only - Built-in Viewer - RAM card Interface 640 x 484 & 1280 X 1024 x ESC pixel resolution 19.2 Kbits modem (30 sec. Xmit) No Analog or Digital I/O Electronic text annotation?			
COMPANDER	3rd PARTY BOARD LEVEL COMPANDER General purpose accelerator (array processor) with Transbit™ Kernel compression on board. Protocol to communicate with Gen. I KSYX desired.	BOARD LEVEL PRODUCTS Offer compression for Mac II and IBM PS2. Compatible with above standalones if image size is: 1:1 or 4:3 - 512 X 512 4:3 - 640 X 480 (sq. pixels) 4:3 - 768 X 484 (Must sample rate convert if required) Compression independent of image resolution. Same board as in Gen 2 KSYX. (GOOD candidates for third party development)		UPGRADES NOTE: All should have standard Modem and protocol compatible with stand alone product to allow easy transmission to and from a computer	
TRANSBIT™ KERNEL	Sell Gen. I kernel to all interested parties. Establish as de facto standard. (several quality levels?)	Improved Transbit™ kernel Improved graphics performance		New compression technique. Vector Quantization?	

CAPTURE : CAMERA HEADS

- INTRODUCE A COMPUTER RES NTSC CAMERA HEAD THAT USES A 640 X 484 IMAGER. FILLS NICHE IN COMPUTER MARKETS BECAUSE IT OFFERS SQUARE PIXELS AND THE SAME RESOLUTION AS THE STANDARD MONITORS OF BOTH THE APPLE MAC II AND THE IBM PS 2.
- FOLLOW WITH MEGAPIXEL CAMERA HEAD THAT OUTPUTS RS-343 STANDARD SIGNALS (1280 X 1024 RGB @ 70 KHz)

CAPTURE : CAMERAS

- INTRODUCE RAMCARD VERSION OF 1B ESC AS SOON AS POSSIBLE THAT TAKES FULL ADVANTAGE OF THE NTSC STANDARD. LIMITER HERE MAY BE AVAILABILITY OF COMPRESSION, NOT MEDIA OR IMAGER.
- FOLLOW THAT PRODUCT AS QUICKLY AS POSSIBLE WITH MEGAPIXEL RAMCARD CAMERA, CALLED IRIS (IMPROVED RESOLUTION IMAGING SYSTEM)
- INFORMATION ON RAMCARD CAN BE DIRECTLY TRANSMITTED WITH:
PORTABLE TRANSMITTER (A MODEM W/LOW RES VIEWER)
GEN 2 KSVX BASE TRANSCEIVER (FULL QUALITY VIEW)
DIGITAL STORAGE DEVICE W/ TRANSMISSION OPTION (FULL QUALITY VIEW)

COMMENT: 2 MEGABIT RAM CARDS AVAILABILITY ANNOUNCED 1-88.

CAPTURE : SLIDE TO VIDEO

"USING CAROUSEL TRAY"

- INTRODUCE GPD VERSION WITH MEDIUM QUALITY NTSC.
- FOLLOW THAT WITH A VERSION THAT TAKES FULL ADVANTAGE OF THE NTSC STANDARD (640X480 COLOR SEQUENTIAL IMAGE) PLUS ADD HI-RES RGB AND DIGITAL OUTPUTS.
- WHATEVER MAKES SENSE FOR THE DPTS AS FAR AS FUTURE ITERATIONS ARE CONCERNED FOLLOWS HERE, BE IT 4X DITHER, MEGAPIXEL SENSOR OR WHATEVER

ISSUE: LINEAR VS. AREA ARRAY
PRESENTATION OR TRANSFER DEVICE?

CAPTURE : TRANSFER DEVICES

- INTRODUCE HIGH QUALITY DIGITAL PIXEL TRANSFER STAND THAT TAKES FULL ADVANTAGE OF THE NTSC STANDARD PLUS HI-RES RGB AND DIGITAL AS SOON AS POSSIBLE. (640 X 480 PIXEL IMAGER)
- FOLLOW WITH A 4X RESOLUTION IMPROVEMENT OF THE SAME DEVICE USING THE SAME IMAGER AND 4X DITHER TO PROVIDE HI-RES IMAGES FOR COMPUTERS. THE FRAMESTORE WOULD BE CAPABLE OF STORING A 1280 X 960 IMAGE BUT WOULD SUBSAMPLE TO 640 X 480 FOR DISPLAY. DEPENDING ON COMPUTERS' DISPLAY RESOLUTION IT MAY BE NECESSARY TO SCROLL IMAGE IN WINDOW TO SEE FULL IMAGE OR SAMPLE RATE CONVERT THE IMAGE TO MATCH THE COMPUTER'S DISPLAY.
- THE NEXT PRODUCT IS A MEGAPIXEL (1280 X 1024) TRANSFER STAND FOR HI-RES COMPUTER CAPTURE. SIMILAR TO ABOVE BUT NO DITHER REQUIRED.
- THE FOLLOW ON TO THE ABOVE PRODUCT IS THE ADDITION OF A 4X DITHER. STILL PROVIDES 640 X 480 REAL TIME DISPLAY, HOWEVER FRAMESTORE CANNOT HOLD A FULL RES (2560 X 2048) IMAGE SO IMAGE MUST BE RECONSTRUCTED BY COMPUTER.

ISSUES:

- * CURRENTLY LOOKING AT 4:3 ASPECT RATIO ONLY - HOW DO WE ADDRESS YET TO BE DEFINED HDTV ASPECT RATIO?
- * NO FUNDING FOR 4X DITHERING DEVELOPMENT.
- * FOR 640 X 484 IMAGER ONLY ONE AVAILABLE OUTSIDE, DO WE FUND DEVELOPMENT OF KODAK IMAGER TO OUR SPECIFICATION?
- * IS THERE A NEED FOR THIS TYPE OF PRODUCT IN THE PRESENTATION MARKET?

CAPTURE : TRANSFER DEVICES

- INTRODUCE HIGH QUALITY DIGITAL PIXEL TRANSFER STAND THAT TAKES FULL ADVANTAGE OF THE NTSC STANDARD PLUS HI-RES RGB AND DIGITAL AS SOON AS POSSIBLE. (640 X 480 PIXEL IMAGER)
- FOLLOW WITH A 4X RESOLUTION IMPROVEMENT OF THE SAME DEVICE USING THE SAME IMAGER AND 4X DITHER TO PROVIDE HI-RES IMAGES FOR COMPUTERS. THE FRAMESTORE WOULD BE CAPABLE OF STORING A 1280 X 960 IMAGE BUT WOULD SUBSAMPLE TO 640 X 480 FOR DISPLAY. DEPENDING ON COMPUTERS' DISPLAY RESOLUTION IT MAY BE NECESSARY TO SCROLL IMAGE IN WINDOW TO SEE FULL IMAGE OR SAMPLE RATE CONVERT THE IMAGE TO MATCH THE COMPUTER'S DISPLAY.
- THE NEXT PRODUCT IS A MEGAPIXEL (1280 X 1024) TRANSFER STAND FOR HI-RES COMPUTER CAPTURE. SIMILAR TO ABOVE BUT NO DITHER REQUIRED.
- THE FOLLOW ON TO THE ABOVE PRODUCT IS THE ADDITION OF A 4X DITHER. STILL PROVIDES 640 X 480 REAL TIME DISPLAY, HOWEVER FRAMESTORE CANNOT HOLD A FULL RES (2560 X 2048) IMAGE SO IMAGE MUST BE RECONSTRUCTED BY COMPUTER.

ISSUES:

- * CURRENTLY LOOKING AT 4:3 ASPECT RATIO ONLY - HOW DO WE ADDRESS YET TO BE DEFINED HDTV ASPECT RATIO?
- * NO FUNDING FOR 4X DITHERING DEVELOPMENT.
- * FOR 640 X 484 IMAGER ONLY ONE AVAILABLE OUTSIDE, DO WE FUND DEVELOPMENT OF KODAK IMAGER TO OUR SPECIFICATION?
- * IS THERE A NEED FOR THIS TYPE OF PRODUCT IN THE PRESENTATION MARKET?

Development Tasks Supporting Phantom 5 Year Plan

Transfer Stand and Slide to Video

- Develop or OEM a 640 X 484 imager with square pixels.
- Develop color wheel/dither/imager head assembly
- Map out framestore for dither application
- Develop 1280 X 1024 based imager head (PRL)

Slide to Video

- Develop linear scanner capability (PRL)

Camera

- Start Gen. III (ASIC) compressor.
- Miniaturize Gen. I compression circuits.
- Show battery capability for above circuits.
- Demo image storage on RAM card.

Transmission

- Develop ISDN interface.
- Develop next Gen. modem interface.
- Develop next Gen. Transbit Kernel.

Printers

PRL:

- Blue Field Slide, Laser
- 35mm Thermal Transfer & Transport
- 35mm, Laser
- Develop Next Gen. Large Format Printer Technology, Resistive Ribbon, etc.
- Gen. II Media
- High Speed Printers
- New Drivers
- Develop 1024 head for 4 x 5 printer

Players/Recorders

- Acquire Storage Module Source, Know-How... (Heads, Servo, Media)
- Develop Gen. II Framestore
- Define Digital Storage/Retrieval Device
- Define Operating System
- Develop Digital Sound Capability

DIGITAL STORAGE DEVICE OPTIONS

OPTION 1 - FRAMESERVER ONLY

PROS

- 1. EXPANDIBILITY
- 2. FLEXIBILITY
- 3. EASY SYSTEM INTERCONNECT
- 4. LOWER SYSTEM COST
- 5. EFFICIENT USE OF EPD RESOURCES
- 6. PLATFORM FOR FUTURE PRODUCTS

CONS

- 7. LESS FRIENDLY USER INTERFACE?
- 8. SLIGHTLY HIGHER COST FOR STANDALONES - DPTS & KSVX2 (SW Cost)
- 9. LENGTHENS DEVELOPMENT TIME FOR STANDALONES

OPTION 2 - FRAMESERVER & DPTS & KSVX2 & DSD

(DSD AND FRAMESERVER ARE SO SIMILAR THAT DOING BOTH MAKES NO SENSE)

OPTION 3 - FRAMESERVER & DPTS & KSVX2

PROS

- 1. EXPANDIBILITY
- 2. FLEXIBILITY
- 3. EASY SYSTEM INTERCONNECT
- 4. LOWER SYSTEM COST
- 6. PLATFORM FOR FUTURE PRODUCTS
- STANDALONE HUMANIF, COSTS & SCHEDULE ARE NOT COMPROMISED

CONS

NOT TOTALLY EFFICIENT USE OF RESOURCES

OPTION 4 - FRAMESERVER & DPTS

PROS

- 1. EXPANDIBILITY
- 2. FLEXIBILITY
- 3. EASY SYSTEM INTERCONNECT
- 4. LOWER SYSTEM COST
- 6. PLATFORM FOR FUTURE PRODUCTS

CONS

NOT TOTALLY EFFICIENT USE OF RESOURCES
7,8,9 ABOVE APPLY TO KSVX2

OPTION 5 - KSVX2 & DPTS & DSD

(HAVING DONE A DSD THE INCREMENTAL STEP TO FRAMESERVER IS SMALL IN RELATION TO THE FLEXIBILITY BENEFITS)

NOTE: A DSD COULD BE DEFINED TO BE A FRAMESERVER

HARD COPY : 35MM

- INTRODUCE FIRST 35MM PRINTER WITH THERMAL HEAD - INTERFACES SIMILAR TO GEN 2 4 X 5 PRINTER (VIDEO AND DIGITAL) MODERATE QUALITY - FOR VIDEO AND COMPUTER MARKETS.
- FOLLOW WITH LASER PRINTERS (BLUE FIELD AND CONTINUOUS TONE COLOR) FOR HI-RES COMPUTER MARKET. (DIGITAL ONLY)

ISSUE: IS INTERMIXING WITH STANDARD SLIDES A PROBLEM?

HARD COPY: 4 X 5

- 4 X 5 PRINTERS ARE TARGETED MAINLY AT VIDEO MARKETS. THE NEED TO GO TO HIGHER COMPUTER RESOLUTIONS IS QUESTIONABLE.

IS THERE MARKET NEED FOR A1280 X 1024 RESOLUTION 4X5 PRINTER IN 1990

- NO NEW TECHNOLOGIES IN LATER YEARS TO JUSTIFY ANYTHING OTHER THAN ENHANCEMENTS AND NEW FEATURES TO GEN 2 PRODUCT BASED ON MARKET FEEDBACK.

HARD COPY: 8 X 10

- SINCE THESE PRODUCTS ARE TARGETED AT HI-RES COMPUTER APPLICATIONS THEY ONLY HAVE DIGITAL INPUT (SCSI). NEED TO CONSIDER A LAN INTERFACE ALSO. VIDEO COULD BE BROUGHT IN VIA A DIGITAL STORAGE DEVICE OR A COMPUTER WITH VIDEO CAPTURE CAPABILITY.
- FIRST LARGE FORMAT PRINTERS TO USE HI-RES THERMAL HEAD TO BE FOLLOWED BY NEXT GEN PRINTER WITH HIGHER AND VARIABLE RESOLUTION.

**ISSUES: NO INPUT DEVICE TO SUPPORT LARGE FORMAT PRINTER RESOLUTION
HIGHER THROUGHPUT SPEEDS?
FUSERLESS MEDIA?
COPIER INTERFACE?**

MEDIA

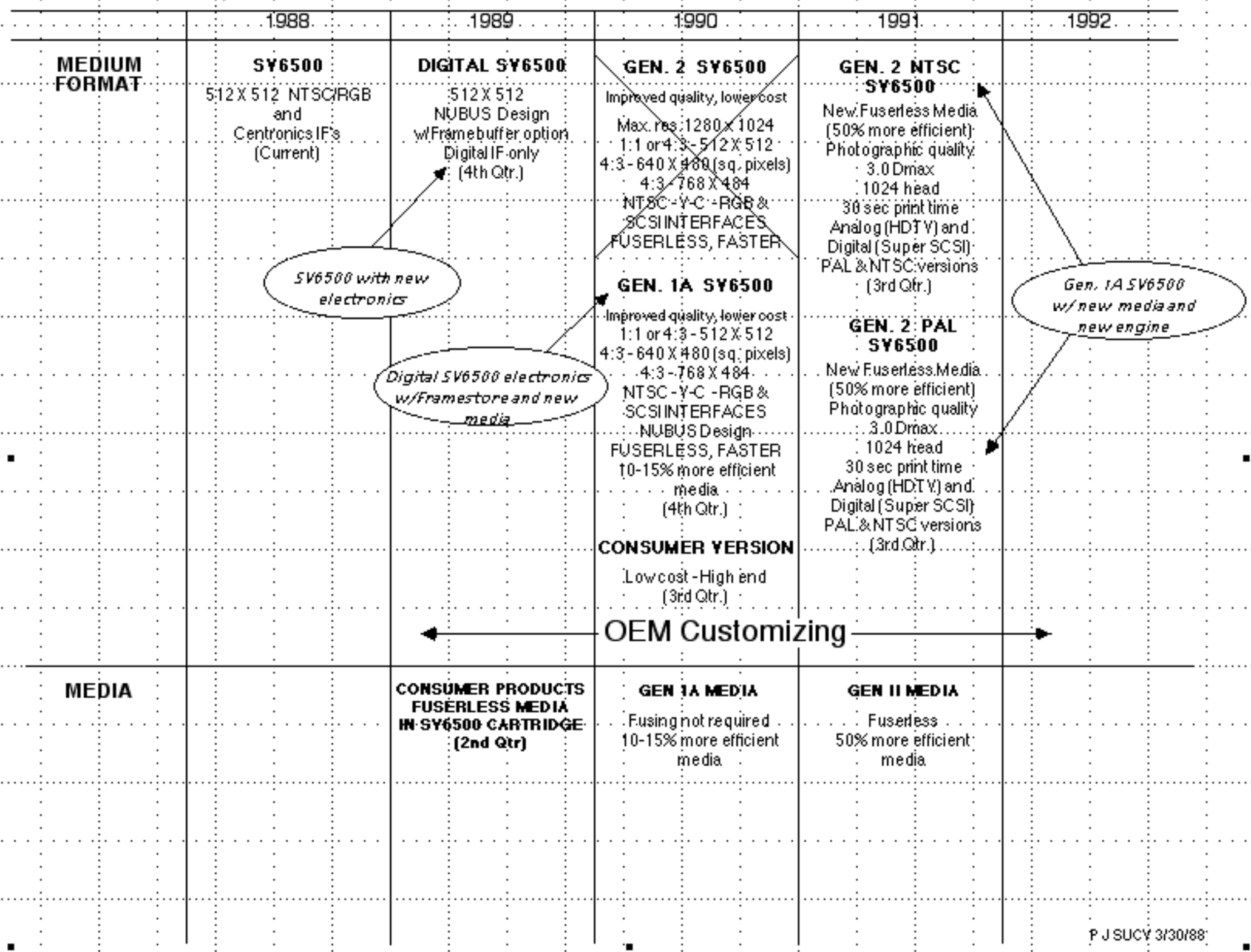
- DEVELOP 8 1/2 X 11 PRINT AND TRANSPARENCY MEDIA. FOR TRANSPARENCY DEVELOP NEW HIGHER DENSITY MEDIA OR DOUBLE PASS TECHNIQUE WITH EXISTING FORMULATION.
- INTRODUCE 35mm TRANSPARENCY MEDIA FOR SLIDE PRINTER, USING ABOVE TECHNOLOGY.
- DEVELOP BLUE FIELD MEDIA
- LONG TERM DEVELOP MEDIA THAT DOES NOT REQUIRE FUSING.

ISSUES: DO WE NEED HIGHER DENSITY MEDIA OR CAN CURRENT MEDIA BE USED WITH DOUBLE OR TRIPLE PASS?

SQP FOR LARGE FORMAT PRINTERS/MEDIA

	1988	1989	1990	1991	1992
LARGE FORMAT		FSD Multi-Format Printer 2048 X 2048 (11" X 11") Prints and Transparencies (Digital IF only) EPD 8.5 X 11 Printer 1536 X 2048 (8.5" X 11") Prints and Transparencies (Digital IF only) KODAK Large Format Printer "Smart" Engine 2048 X 2048 (11" X 11") 1536 X 2048 (8.5" X 11") Prints and Transparencies Digital IF only (2nd Qtr)	KODAK USA Version Large Format Printer "Lowcost" Engine NUBUS based 2048 X 2048 (11" X 11") 1536 X 2048 (8.5" X 11") Prints and Transparencies Digital IF only Faster throughput? (1st Qtr) KODAK European Version Large Format Printer "Lowcost" Engine NUBUS based 2048 X 2048 (11" X 11") 1536 X 2048 (8.5" X 11") A4 size paper Prints and Transparencies Digital IF only Faster throughput? (1st Qtr) Both use same electronics as Digital SV6500		Market Driven Next Gen. Multi-Format Printer 8192 X 10240 max. resolution 8.5" X 11" Print and Transparencies (Digital IF only) Many Markets and Technologies, where do we want to be?
		← OEM Customizing →			
MEDIA		Large Format Reflection Media (2nd Qtr.) Large Format Transparency Media (3rd Qtr.)	High Performance Fuserless Media (1st Qtr.)		GEN II Media

SQP FOR MEDIUM FORMAT PRINTERS/MEDIA



SQP FOR SMALL FORMAT PRINTERS/MEDIA

	1988	1989	1990	1991	1992
SMALL FORMAT	KVIDS 3 STATION PRINTER MULTI-CARTRIDGE BAR CODE PRINTING FLASH CAMERA (4th Qtr.)	KVIDS ENGINE • DIGITAL KVIDS 8 dots/mm head (30 sec/card) • 35mm COLOR SLIDE 16 dots/mm head (4th Qtr.)		KVIDS HARD CARD 35mm LASER PRINTER NUBUS	
MEDIA		35mm TRANSPARENCY 3rd Qtr. HIGH EFFICIENCY ID MEDIA 2nd Qtr. PLASTIC COLORED ID CARDS 3rd Qtr.	35mm TRANSPARENCY 3rd Qtr. IR READIBLE DYES 2nd Qtr.	HARD CARD SUPPORT LASER MEDIA TRANSLUCENT (OPULESCENT) SUPPORT MEDIA (TBR)	

STORAGE OPTIONS

[illegible]

STORAGE/RETRIEVAL:

Single Disk Recorder

- FUTURE ENHANCEMENTS FOR SV7400 NOT NECESSARY AS DIGITAL STORAGE DEVICE WILL PROVIDE SINGLE DISK INTERFACE AS WELL AS ABILITY TO UPGRADE AS NEW STANDARDS/TECHNOLOGIES EVOLVE.

MultiDisk Recorder

- ADD ERASE CAPABILITY AND GET OUT AN IMPROVED MULTIDISK AS QUICK AS POSSIBLE, ADD OTHER FEATURES ONLY IF IT DOESN'T IMPACT SCHEDULE.

STORAGE/RETRIEVAL:

DSD - DIGITAL STORAGE DEVICE

- PROVIDES DIGITAL STORAGE VIA THE OPTICAL DISK.
IMAGES CAN BE UPLOADED OR DOWNLOADED TO RAMCARDS,
STILL VIDEO FLOPPIES, TAPE BACKUP OR TO ANOTHER OPTICAL
DISK.
 - BUILT-IN RAMCARD INTERFACE
 - BUILT-IN OPTICAL DISK CONNECTED VIA SCSI
 - EXTERNAL SVF INTERFACE
 - EXTERNAL TAPE BACK-UP CONNECTED VIA SCSI
- FLEXIBLE STORAGE CONFIGURATIONS.
- COMPRESSION FOR STORAGE IS AN OPTIONAL BOARD
- TRANSMISSION IS ALSO AN OPTION.
- CAN STORE DIGITAL IMAGES OF ANY RESOLUTION.
- PROVIDES VIDEO INPUT FOR DIGITAL LARGE FORMAT PRINTER USING RGB OR
NTSC ANALOG INPUTS ON DSD. DATA TRANSFER TO LARGE FORMAT PRINTER
VIA A SCSI INTERFACE.

ISSUES: • *AUDIO?*

• *IS A PLAYBACK ONLY DEVICE NEEDED FOR PRESENTATION?*

TRANSMISSION : COMPANDERS

- INTRODUCE BOARD LEVEL COMPRESSION PRODUCTS FOR THE MAC II AND IBM PS 2 THAT ARE RESOLUTION INDEPENDENT.
 - IN 1988 AS PART OF A 3RD PARTY GENERAL PURPOSE ACCELERATOR BOARD.
 - IN 1989 AS A VERY HIGH SPEED ACCELERATOR BOARD OPTIMIZED FOR THE TRANSBIT™ KERNEL BUT ALSO GENERAL PURPOSE.
- EXPLOIT OUR COMPRESSION TECHNOLOGY AND ESTABLISH IT AS A DE FACTO STANDARD.
- STAND ALONE TRANSMISSION PRODUCTS WOULD MAKE USE OF THIS COMPANDER BOARD.

ISSUE: STAND ALONE COMPANDER ON CURRENT PLAN MAKES NO SENSE.

TRANSMISSION: PORTABLE

- INTRODUCE A PORTABLE TRANSMITTER THAT IS BASICALLY A MODEM AND A VIEWER WITH A RAMCARD INTERFACE. NO ANALOG OR DIGITAL I/O. UNIT DOES SOME DECODING TO DISPLAY A LOW RES. IMAGE ON VIEWER. BATTERY POWERED.
- SHOULD BE DESIGNED TO BE FOWARD COMPATIBLE WITH MEGAPIXEL RAMCARD CAMERA IN 1991.

ISSUE: PRESS PHOTOGRAPHERS WANT TO ANNOTATE IMAGE AND DEFINE THE CROPPING WHEN TRANSMITTING AN IMAGE.

TRANSMISSION: STAND ALONE

- INTRODUCE A STAND ALONE TRANSCEIVER THAT OFFERS FULL NTSC QUALITY WITH FASTER COMPRESSION, FASTER TRANSMISSION, A DIGITAL INTERFACE (SCSI), ISDN COMPATIBILITY BUT OTHERWISE THE SAME AS GEN. 1
- THERE APPEAR TO BE NO NEW TECHNOLOGIES THAT SUGGEST ANOTHER GENERATION OF THIS PRODUCT BUT NEW FEATURES AND ENHANCEMENTS BASED ON MARKET FEEDBACK MAY INSPIRE UPDATES TO THE BASIC PRODUCT.

NOTE: THESE PRODUCTS WOULD UTILIZE THE BOARD LEVEL COMPANDER PRODUCTS.

TRANSMISSION:

TRANSBIT KERNEL

- *INTRODUCE SOFTWARE PRODUCT TO DO COMPRESSION ON A PC. GET IT OUT QUICKLY AND WIDESPREAD TO PROMOTE IT AS A DE FACTO STANDARD AND ESTABLISH IT AS BEING ABLE TO COMMUNICATE BETWEEN STAND ALONES AND COMPUTERS.*
- IMPROVED VERSION IN 1989 - BETTER PERFORMANCE FOR TIME AND GRAPHICS WHICH WILL FIND ITS WAY INTO STAND ALONE PRODUCTS AND CAMERAS.
- ENHANCEMENTS TO ALGORITHM WILL BENEFIT BOARD LEVEL AND SOFTWARE PRODUCTS BUT NOT STAND ALONES SINCE THEY ARE LIMITED BY PHONE LINES IN THIS TIME FRAME.

TRANSMISSION OPTIONS

INPUTS

HI-RES DIGITAL IMAGES

RAM CARD

RGB & NTSC

RGB & NTSC

PORTABLE
TRANSMITTER

GEN 2 KSYX OR
DIGITAL STORAGE DEVICE
W/ TRANSMISSION OPTION

GEN 2 KSYX OR
DIGITAL STORAGE DEVICE
W/ TRANSMISSION OPTION

COMPUTER W/
TRANSMISSION BOARD
& SW

COMPUTER W/
TRANSMISSION BOARD
& SW

◆ = PHONE LINES