QUANTUM

CORPORATION

BUSINESS PLAN

APRIL 1980

Dave Brown

	Revenue Potential
1. 4 5¼" Rigid (5 MB < $280. COST. 1000 quantities)	
2. 2 Twin Mini Floppy	
3. 3 8" Rigid 10 MB+	
4. 1 8" Twin Floppy	
5. 8" Fixed/Removable Rigid	
6. 5 High Capacity 8" Floppy	
7. 5¼ Rigid/Twin mini	
8. Mini High Capacity 5¼ Floppy	

Annual Sales '83 Y.E. total Market

First needed
too Late for US

Market growth slope @83

	Today 6'81	1Q'81 4Q81	Today 1Q'83	4Q'80 4Q'81	Today 6'81	Today 1Q'81	Today 6'81	6'80 1Q'81	Timing (window)
									Life/growth
	~25		~15	~15	~10	~30	~20	>50	Share Potential
	7	4	2	5?	10	10	10	8?	Competition synergy
	M	H	M	H	L	L	L	L	Dev Cost
	M	H	M	H	M	L	M	L	Manf Start up cost
							L		RoI
	M	H	H	H	L	M	L	M	Marketing Product Risk

RISK OF CHOOSING WRONG PRODUCT

RISK OF CHOOSING WRONG PRODUCT

		M	H	M	H	M	L	M	L	Manf Start up cost
										ROI
		M	H	H	H	L	M	L	M	Marketing Product Risk
		H	M	H	H	H	H	H	M	Competition
		M	H	H	H	L	L	M	M	Design Tech Risk
		M	H	M	H	L	M	L	M	Manf tech Risk
		M	H	M	H	L	M	L	H	Vendor dependence
		PROPORTIONAL TO COMPETITION								Margin Risk AUP/AUC
										Transfer of wealth
										INVESTMENT RATIO

DAVID A. BROWN

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COPY NO._____

PRIVATE PLACEMENT MEMORANDUM CONFIDENTIAL

$5 MILLION
QUANTUM CORPORATION

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The date of this Memorandum is April 15, 1980.

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EXECUTIVE SUMMARY

QUANTUM FOUNDED TO EXPLOIT LOW COST DISK DRIVE MARKET

Quantum Corporation was founded in February 1980 in order to exploit a major opportunity emerging in the low cost disk drive market. The six founders of Quantum have a broad background of experience covering all aspects of the low cost computer peripheral business; general management, marketing, engineering and manufacturing. Most recently this experience has been with the industry leader of low cost disk drives - Shugart Associates. Founders of Quantum played a major role in product development, manufacturing and marketing of products that created the O E M market for low cost memory products.

The most dynamic high-growth industries in the U.S. today are in the business of information processing. The computer industry, representing $55 billion a year, is doubling in size every 3 to 4 years. Most of this explosive growth comes from the low cost sector of this industry. Personal Computers, Small Business Systems and Word Processing Products are experiencing annual increases of 35 to 50%.

Data storage devices such as disk drives are an essential element of these low cost systems. As a result the demand for low cost disk drives is explosive.

MARKET DIVIDED INTO HIGH PERFORMANCE AND LOW COST SEGMENTS

The high demand has drawn a number of companies into the development of 8" Winchester fixed media disk drives.These products are based on the mature IBM "Winchester" technology, and offer significant advantages in cost, reliability and size compared with competing memory products. Most entrants in this field have elected to develop high performance products aimed at competing with the established 14 inch diameter disk drives. However, two companies, Memorex and Shugart Associates have taken a different direction. They have developed products which provide a natural upgrade for O E M customers of floppy disk drives. These products result from a focus on the lowest possible cost and greatest possible compatibility with floppy disks. The result is products which leverage the advantage of the technology with the enormity of the floppy disk market.

The floppy disk market now exceeds 1 million units per year, and shipments are projected to double within 3 years. Most of the products which incorporate floppy disks can benefit from the performance and reliability of the low cost 8 inch diameter Winchester products. Because the advantages can be obtained at little increase in cost, demand for floppy like fixed disk drives is very high. Sales of those products will exceed 4 hundred thousand units in 1984. Revenue from these sales will be over $450 million.

QUANTUM THIRD COMPANY TO ENTER LOW COST MARKET

Quantum will be the third company to introduce a low cost, floppy disk like Winchester product. The Quantum product is based on an innovative combination of mature technologies. This unique design results in a doubling of the data recording capacity. The Quantum approach reduces by one half the recording media and read/write heads required for a given storage capacity. For the same reason more than twice the capacity can be packaged within the physical size of competing products. Quantum's product family is a generation ahead of the products of Shugart Associates and Memorex.

Sales of Quantum's products will be made primarily to O E M customers who are today using 8-inch floppy disk drives. Shugart Associates today dominates the floppy disk drive OEM marketplace with over 60% marketshare. They are projected to lead the complimentary low cost 8-inch fixed disk drive marketplace.

Quantum will benefit from the market position of the industry leader. Quantum's products will be completely compatible with Shugart Associates' products. Shugart Associates' customers can consider Quantum as a second source and Quantum has a second source; a valuable asset for a new company. Quantum's products will receive broad exposure and rapid acceptance in the market.

QUANTUM'S COMPATIBLE PRODUCTS A GENERATION AHEAD

Quantum's product is a generation ahead of the other entrants in the low cost 8 inch disk market. For this reason the products costs are at least 20% less than competition at a given storage capacity; additionally, the total storage capacity is 2 to 3 times that of competitive products. These advantages are achieved with a product configuration which is totally compatible with the products of the industry leader. The same techniques and product designs will be applied to future product configurations with similar results.

Quantum's business plan is based on capturing a modest be share of the low cost 8 inch disk market. Sales are projected to 14% of the total market or $70 million in 1984. The plan projects dramatic price erosion, and assumes costs to increase at 10% per year due to inflation. Even with these considerations Quantum costs will permit the company to compete aggressively and still achieve gross profit greater than 40% and pre tax profit of more than 20% .

EQUITY INVESTMENT REQUIRED TO MEET QUANTUM'S GOALS

Quantum is seeking an equity investment of $5 million. These funds will be used by the company for product development, prototype build, manufacturing tooling, market introduction and manufacturing start-up of the product through yearend 1981. At that time the company will:

- Have completed development of its first product family
- Have introduced the product to the market
- Have established a manufacturing capability in excess of 40 disk drives per day
- Have a customer base including several large rapid growth O E M accounts
- Be shipping products at an annual rate of $10 million per year
- Be operating profitably

The foundation will be established. From this point the company will grow to become a major supplier of low cost disk drives. The company's profits and value will continue to increase, providing significant return to its shareholders.

MARKET INTRODUCTION

STRONG GROWTH IN LOW END OF DATA PROCESSING MARKET

A significant development in the data processing industry today is the strong growth of low cost segments of the market. Local control and processing of data is an idea whose time has come. In both stand alone systems and in work stations connected to large processors or networks, the trend is to control and process data at the site where it is used. The result of this trend continues to be very healthy growth in small business and word processing systems, personal computers, intelligent terminals, and dedicated mini and micro computer segments of the marketplace.

The trend toward low cost systems is well established and will continue in the 1980s. The data processing industry today is very much driven by user demand for low cost products. This is significantly different from the past when the industry was striving for continuous improvements in performance of high-end systems. The trend toward local control of data has introduced a new class of user into the market who demands low cost, affordable systems.

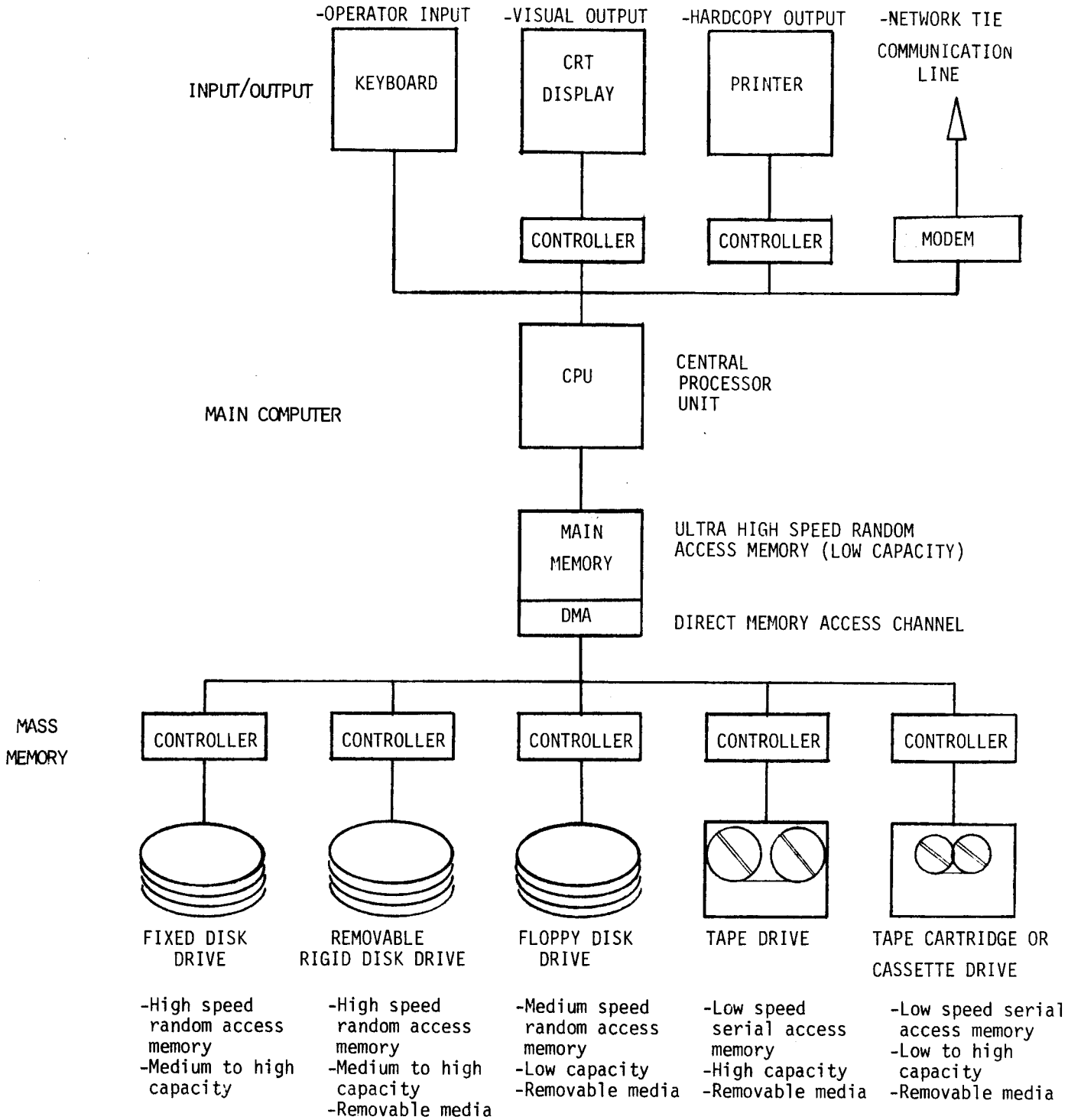
Paralleling the move to lower cost and decentralized data processing is the demand trend to smaller physical size systems and components. Data and information processing devices are increasingly used in small business or office sites where physical size compatibility with other office equipment and furniture is important.

COST OF PERIPHERALS BECOMES MORE IMPORTANT AS CPU COSTS DECLINE

Data processing technology has both responded and contributed to these demand trends. Semiconductor technology has brought size and cost of central processor (CPU) and main memory functions down dramatically such that they represent a diminishing percentage of the total cost of today's systems. Figure 1 (page 5) shows the basic architecture of typical data processing systems, describing key system elements and their functions. Some low cost peripheral products have been introduced but reduction in cost of these system elements has not yet approached the magnitude of cost decline achieved for CPU and main memory elements.

OPPORTUNITY FOR QUANTUM

The challenge and future opportunity for small lower cost systems rests largely with peripheral product suppliers.



BASIC COMPUTER ARCHITECTURE

FIGURE 1

MEMORY PERIPHERALS

CATEGORIES OF DISK MEMORIES

A wide range of products is available to meet data processing system requirements for memory. Small size memory products to fill the on-line random access mass memory function can be grouped into three categories:

- Floppy disk drives
  - Offered in 8-inch (standard) and 5-1/4-inch (mini) removable diskette media
- Removable media rigid disk drives
  - Offered in 14-inch diameter removable rigid disk media
- Fixed disk drives
  - Offered in 14-inch and 8-inch non-removable rigid disk media

Figures 2 and 3 (pages 7, 8) show comparisons of key characteristics of computer memories.

USES OF DIFFERENT DISK TYPES

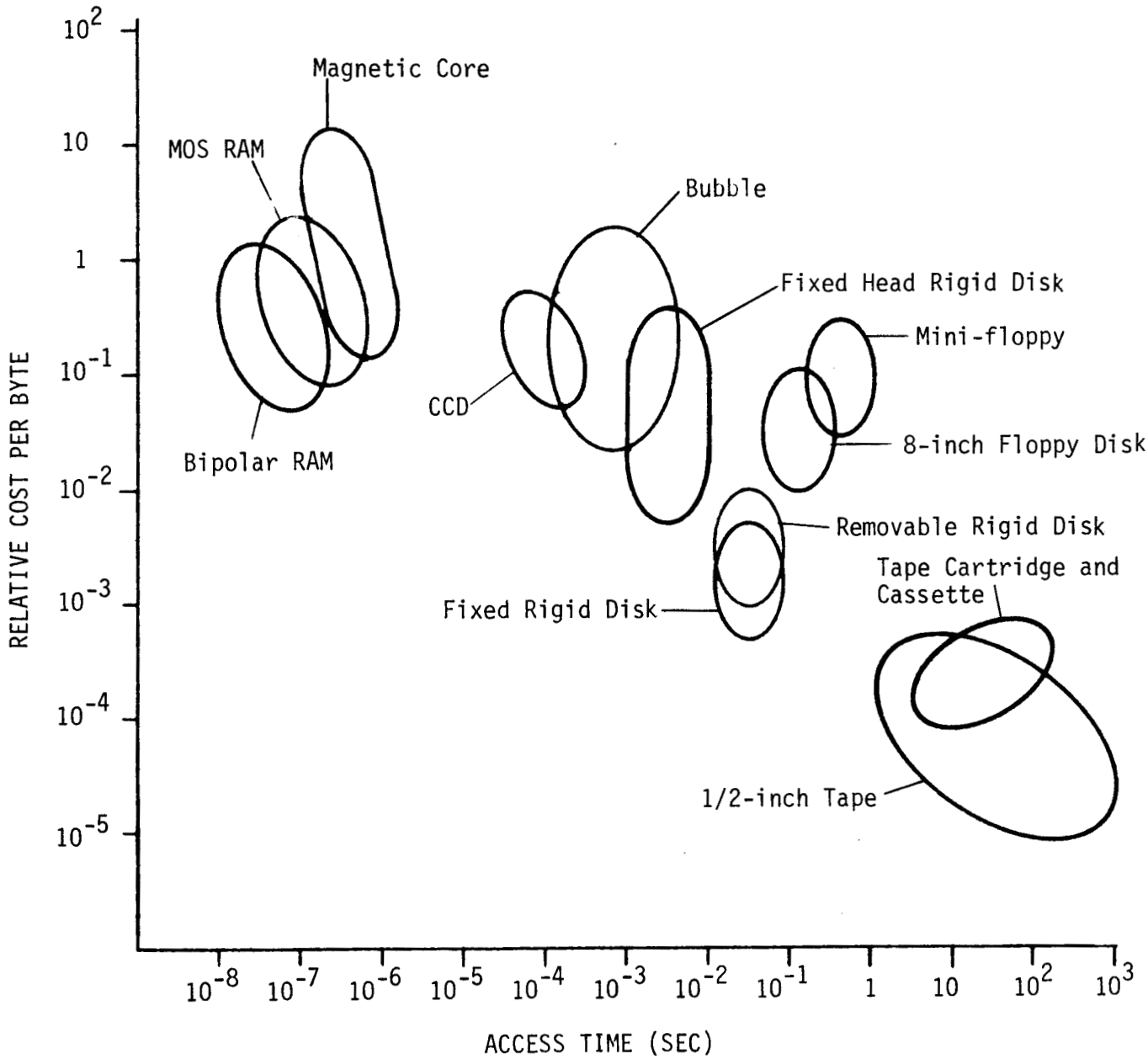
Floppy disk drives are by far the most prevalent memory peripheral in small low cost systems. Floppies offer low cost, random access storage of up to 1.2 megabytes (million characters of data). Additionally, floppies offer the advantage of very low cost (under $10) removable media for input/output (I/O), off-line storage, and data interchange between systems.

Higher cost removable media rigid disk drives are used in larger and more costly computer systems. Today's removable rigid disk drives offer high performance random access storage of from under ten to several hundred megabytes.

The use of fixed disk drives is increasing in small, low cost systems. They offer low cost, higher reliability, capacity, and performance than previously utilized floppy disk drives. Small fixed disk drives today store from five to fifty megabytes on media sealed inside the drive.

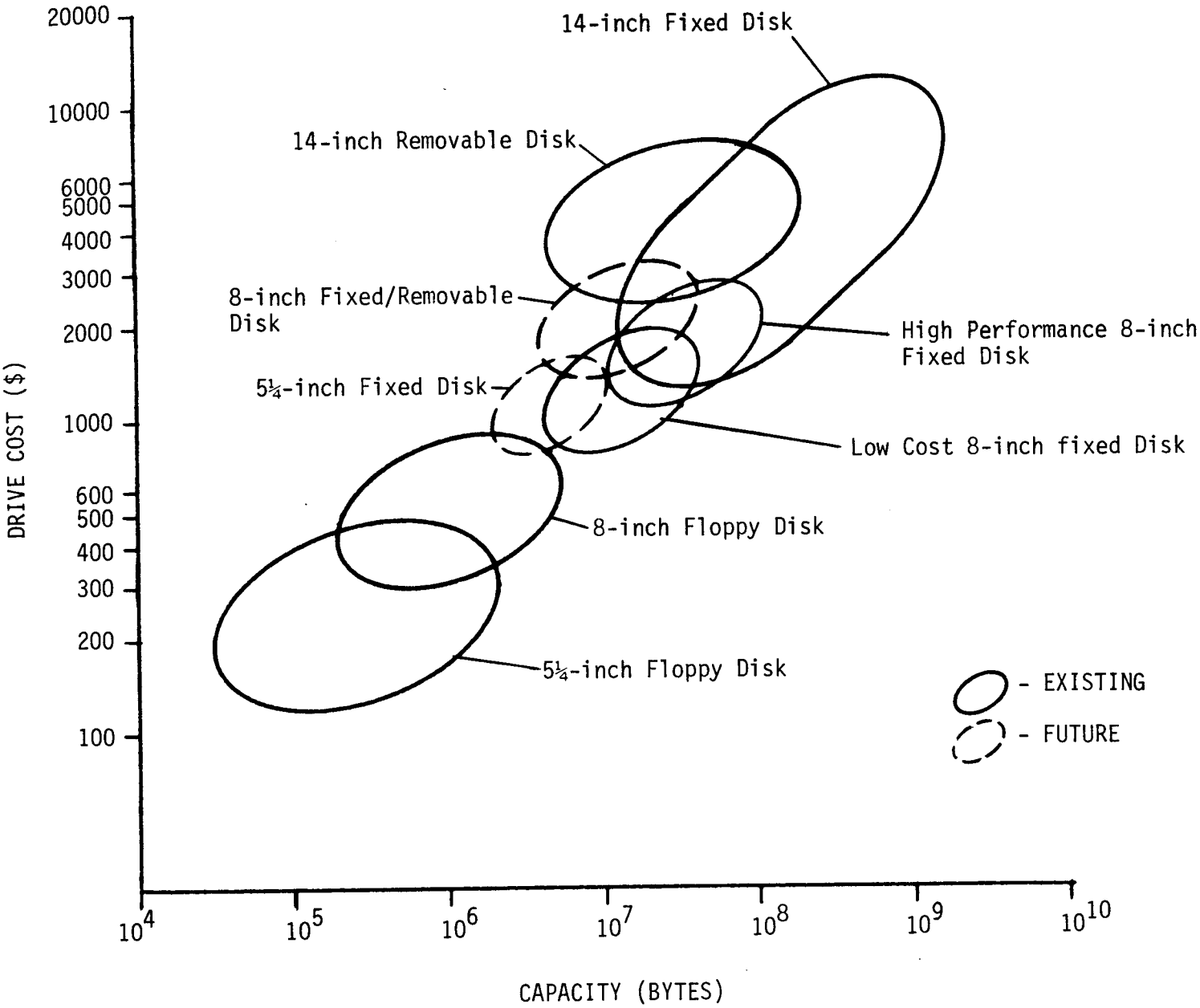
LOWEST COST PRODUCTS USE MATURE TECHNOLOGIES

The lowest cost markets for information storage products tend to be served with mature technology. New technologies are generally introduced when high performance and new function have the greatest value. The successful technologies are then extended to broader and broader markets where the high volume usage further reduces cost. As a technology matures, it is configured into products which provide the lowest cost for a given function. This is true with "Winchester" disk technology now being introduced in lower cost fixed disk drive products.



COST PER BYTE VS ACCESS TIME

FIGURE 2



DRIVE COST VS CAPACITY

FIGURE 3

FIXED DISK DRIVES

"WINCHESTER" FIXED DISK PRODUCTS

With the maturation of IBM Winchester head and media technology, fixed disk drives have become widely accepted products in a broad range of capacity, performance and cost levels. Winchester fixed disk drives today provide single spindle (rotating disk assembly) capacities from over 300 megabytes in large, high performance drives to under five megabytes in small, low cost and lower performance drives. Fourteen-inch diameter disk drives are more cost effective in large capacity memories, while 8-inch disk drives are more cost effective in smaller capacities. The strongest emerging market is for small size, lower cost drives used in low cost data processing systems. Figure 4 (page 10) outlines key attributes of Winchester technology and describes representative fixed disk drive products.

Use of 8-inch disk drives is increasing in systems needing up to 40-50 megabytes of on-line random access mass memory. The higher cost, sometimes higher performance, larger physical size and higher power requirements of 14-inch disk drives are becoming less attractive. A key benefit available with 8-inch drive designs is the system performance and reliability advantages of a fixed disk drive in a physical size compatible with 8-inch floppy disk drives.

LOW COST-HIGH PERFORMANCE DRIVE CLASSES

Eight-inch fixed disk drives available today fall into two major classes reflecting their primary product objectives:

1. High Performance

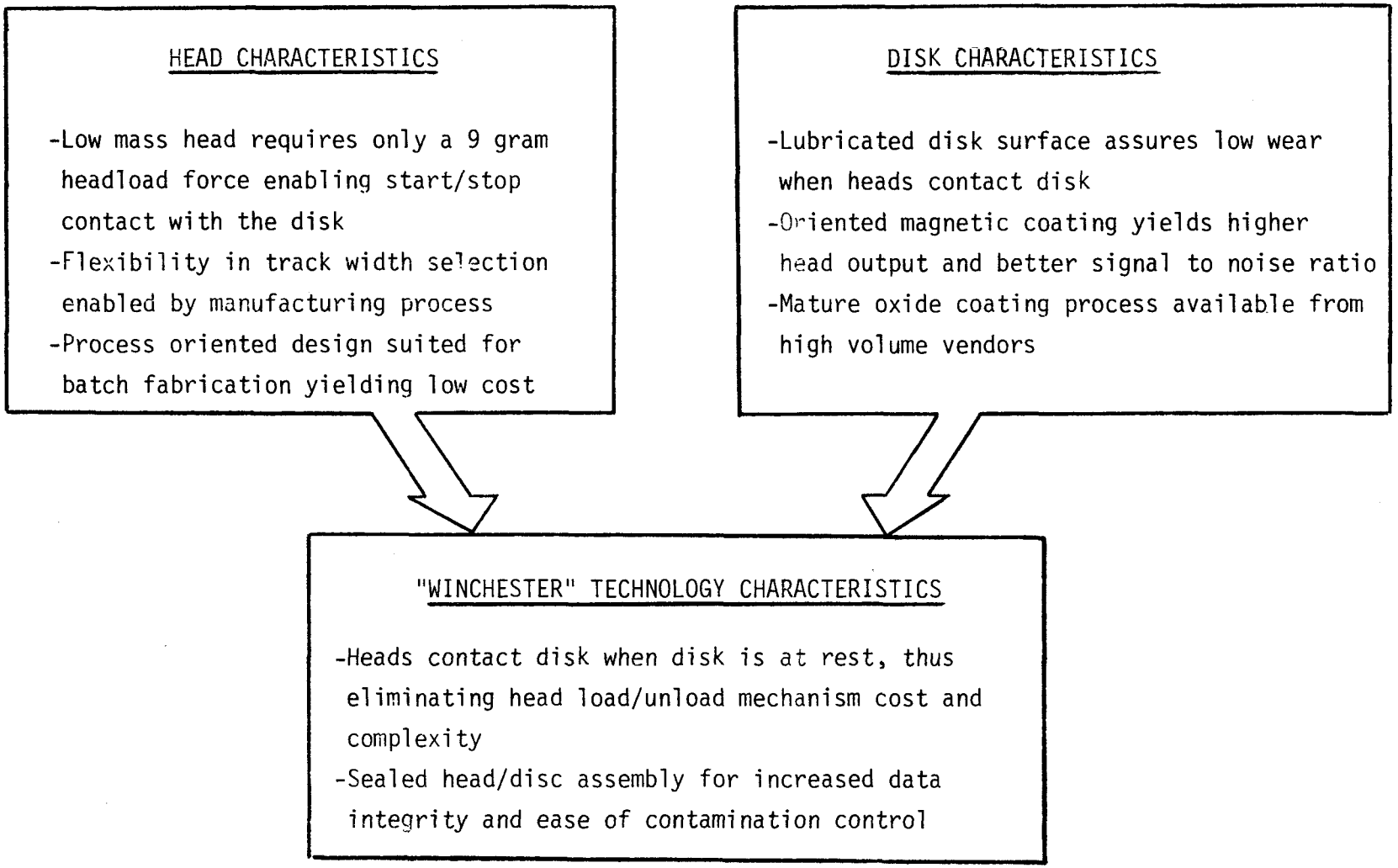
   - Average access time less than 50 milliseconds (ms)
   - High capacity 10 to 50 megabytes (MB)
   - Low cost per byte stored in high capacities
   - Compact size compared to 14-inch disk drives

2. Low Cost

   - Lowest cost per function is primary objective
   - Exact floppy disk drive physical form factor
   - Lower capacity 5-15 MB
   - Average access time approximately 70 ms

HIGH PERFORMANCE PRODUCTS

High performance 8-inch drives are generally positioned to interest system designers previously using high performance 14-inch fixed disk drives and wishing to reduce the physical size of their systems. Recording formats, data rates, and controller interfaces are typically set to emulate earlier 14-inch disk drives. In addition to smaller size, these higher capacity 8-inch drives offer lower cost than 14-inch disk drives in the same capacity range. Higher performance and capacity primarily account for the difference between high and low cost 8-inch drives. Typical OEM suppliers of high performance 8-inch fixed disk drives are International Memories Inc., BASF, Micropolis, Pertec, and Priam. IBM's 3310 "Piccolo" drive fits in this class but is not offered to the OEM market.



HIGHLIGHTS OF "WINCHESTER" TECHNOLOGY

FIGURE 4

LOW COST PRODUCTS OFFER KEY BENEFITS

Low cost 8-inch fixed disk drives today are targeted for specific application in system architectures previously based on floppy disk drives. Ease of integration into floppy disk based systems is a key benefit to system designers.

Both physical and data handling characteristics of low cost drives are aimed to closely match floppy disk drives. Packaging is carefully constrained to allow drive mounting in the exact physical envelope using the same attachment hardware as floppies. This allows assorted mixes of floppy and fixed disk drives to be used in the same system and eliminates the need to alter cabinetry, cabling, and power supplies. The key system function of removable media input/output, backup, and interchange continues to be served by the companion floppy disk drive. Also important is matching of data formatting and controller interface configuration to those used in floppy disk based systems. Only controller upgrades to handle higher data rates and larger file capacities are needed. Therefore, costly changes in floppy disk based system software are not required. Performance (access time and data rate for example) is moderated from high performance drive levels to achieve low cost objectives without sacrificing drive reliability. Drive performance and capacity are still an order of magnitude above performance levels of broadly accepted floppy disk drives; and hence, still highly attractive to system designers and end users. This directly complementary positioning with floppy disk drives makes the forecasted demand growth of low cost fixed disk drives especially strong.

QUANTUM THIRD SUPPLIER TO ENTER THIS MARKET

Suppliers of low cost 8-inch fixed disk drives are Xerox's Shugart Associates (SA1000 products) and Memorex (model 101). Quantum will be the third manufacturer to this class of product. Others expected to introduce products into this market in late 1980 on to 1982 are CDC and 3M.

TARGET OF LOW COST DRIVES IS TO COMPLEMENT FLOPPY DISK DRIVES

Low cost drives are, different from high performance drives, directly aimed at market applications currently using floppy disk drives. By providing easy upgrade of existing floppy disk based systems, floppy disk suppliers can effectively leverage their existing customer bases into compatible fixed disk drives. With total OEM industry shipments over 700,000 units (8-inch floppy disk drives) in 1979 projected to reach over 1.1 million units in 1982, a strong base for growth of complementary products is provided. Shugart Associates today holds over 60 percent marketshare in 8-inch floppy disk drives (compared to Memorex's 5 percent) and is therefore likely to dominate the low cost 8-inch fixed disk drive marketplace.

QUANTUM PRODUCTS

QUANTUM'S PRODUCTS COMPATIBLE WITH INDUSTRY LEADER

Quantum's initial products will be a family of low cost 8-inch fixed disk drives compatible with, yet offering higher capacity than Shugart Associates' SA1000 product line. Quantum will offer drives with 10, 20, and 30 megabyte capacity compared to Shugart Associates' current 5 and 10 megabyte products. Quantum's drives will provide twice the capacity per disk while offering cost advantages compared to Shugart Associates' and Memorex's products. Quantum will use an innovative combination of proven design and manufacturing technologies to achieve the key product objectives of lowest cost SA1000 compatibility, and higher capacity than competing drives.

Cost objectives will be met by rigorous attention to both drive architecture and individual functional elements to assure the lowest feasible cost while still meeting or exceeding basic SA1000 performance and reliability standards. Figures 5 and 6 (pages 13, 14) show a drive cost (element by element) comparison of Quantum's product versus Shugart Associates SA1000, Memorex (MRX) MRX101, and a representative high performance drive. Quantum's product clearly has cost advantages.

INNOVATIVE HEAD POSITIONING SYSTEM ALLOWS COMPATIBLE DOUBLE TRACK DENSITY

In order to achieve cost, compatibility, and capacity objectives, Quantum is designing an innovative head positioning system. This proprietary head actuator combines the low cost advantages of a stepper motor (used in SA1000 and MRX101 drives) with the infinite positioning range of a moving coil motor. This allows higher track densities without increasing cost. The actuator provides its own position reference for track locations. In order to provide double the per disk capacity of competing designs, direct track position feedback is provided from the disk surface. This allows higher track densities than stepper motor actuator drives without limiting recording formats. This also eliminates the need to sacrifice a full disk surface and head for track locating as in higher cost track following designs. A dedicated microprocessor is used in the Quantum drive to control drive logic functions and to provide transparent emulation of SA1000 function.

SA1000 COMPATIBILITY UMBRELLA

In the near term, the overlapping offering of Quantum's and Shugart Associates' 10 megabyte drives will provide a direct, compatible alternate source umbrella for Quantum's entry. Quantum's 10 megabyte drive product cost will allow pricing very competitive with 10 megabyte SA1000 drives and potentially challenging Shugart Associates pricing for 5 megabyte SA1000s.

HIGHER CAPACITY DRIVES PROVIDE DEMAND NICHE

Quantum's higher drive capacity than Shugart Associates and Memorex products will provide unique access to customers needing more memory capacity growth capability than these competitors can supply. Quantum's 30 megabyte drive will provide three times the capacity of the largest SA1000 and MRX101 drives available today.

COMPETITION CAN MEET QUANTUM'S DRIVE CAPACITIES ONLY WITH NEW DESIGN

An analysis of competitors' designs shows that the limit of their present capacity is 15 to 20 megabytes. Higher capacities will require major design changes likely to be similar to Quantum's product. By designing and tooling for a next generation product, Quantum will be starting a step ahead of competition with a design that has future growth capability.

BASIC DRIVE FUNCTION	QUANTUM FEATURES	COST	TYPICAL HIGH PERFORMANCE DRIVE FEATURES	COSTS
SPINDLE ROTATION	-AC DRIVE MOTOR -SEPARATE SPINDLE -BELT AND PULLEYS -SPEED CONTROL PROVIDED BY AC LINE FREQUENCY	$40	-BRUSHLESS DC DRIVE MOTOR INTEGRAL WITH SPINDLE -ELECTRONIC CIRCUITS ARE REQUIRED TO ROTATE SPINDLE -SPINDLE BRAKE USUALLY PROVIDED	$63
POSITION HEADS FROM TRACK TO TRACK	-STEPPING MOTOR EMULATOR WITH PROPRIETARY MOVING COIL MOTOR -OPEN LOOP SEEK COMMANDS PROVIDED BY MICRO-COMPUTER -LOW COST SWINGARM STRUCTURE	$41	-VOICECOIL ACTUATOR WITH 6 BALL BEARING CARRIAGE -CLOSED LOOP VELOCITY SEEKING -STATE-OF-THE ART MECHANICAL STRUCTURE NEEDED	$81
MAINTAIN HEAD POSITION WITH RESPECT TO TRACK	-ELECTRONIC DETENT SYSTEM HOLDS HEADS IN FIXED POSITION -THERMAL AND LONG TERM DRIFT COMPENSATION PROVIDED BY SIGNALS FROM DISKS	$25	-DEDICATED SERVO HEAD AND SERVO DISC SURFACE (ONE DISC SURFACE HAS NO CUSTOMER DATA) -TRACK FOLLOWING SYSTEM MOVES HEADS INSTANTANEOUSLY USING SERVO HEAD SIGNAL	$55
RECORDING TECHNOLOGY HARDWARE -DISK "DEFECT" QUALITY -RECORDING CIRCUITRY -WRITE TIMING & SECTOR TIMING -DATA SEPARATION	WIDER TRACKS PERMIT THE USE OF LOWER COST DISKS PROVIDED ON DRIVE PRINTED CIRCUIT BOARD PROVIDED BY CUSTOMERS' CONTROLLER PROVIDED BY CUSTOMER	$20 PER DISK $10 0 0	NARROW TRACK WIDTH REQUIRES HIGHER COST DISKS CIRCUITS MOUNT ON HEAD ARM AND ON DRIVE PCB PROVIDED BY DRIVE CIRCUITRY PACKAGED IN DRIVE	$33 PER DISK $21 $20 $60
ELECTONIC CONTROL INTERFACE	"FLOPPY DISC LIKE" INTERFACE (EACH CONTROL SIGNAL HAS A DEDICATED ONE WAY WIRE)	$4	BUSS TYPE CONTROL INTERFACE (SIGNALS GO BOTH WAYS ON PARALLEL WIRES)	$10
FAULT DETECTION CIRCUITRY	ALL FAULT CONDITIONS PASSED ON ONE DEDICATED WIRE.(FAULT TYPE NOT AVAILABLE)	$1	ALL FAULT CONDITIONS AND FAULT TYPES ARE COMMUNICATED OVER BUSS	$3
ESTIMATED COST TOTALS		$141		$345

LOW COST vs. HIGH PERFORMANCE BASIC DRIVE FUNCTION

COST COMPARISON

FIGURE 6

THE ABOVE ESTIMATED COST COMPARISONS ARE BASED SOLELY ON PUBLICLY AVAILABLE COMPONENT PRICING AND QUOTATIONS APPLICABLE TO LARGE PRODUCTION QUANTITIES

COMPETITION

DIRECT AND ALTERNATIVE PRODUCT COMPETITION

Quantum will have direct competition from suppliers of low cost 8-inch fixed disk drives and, to some extent, from suppliers of alternative memory products. Initially, alternative products such as high performance 8-inch fixed disk and 14-inch fixed and removable disk drives will be indirect competition. In the future, some competition may be felt from hybrid 8-inch fixed and removable disk, 5-1/4-inch fixed disk, high capacity floppy disk drives, and bubble memories. Methods to back up data stored on fixed disk drives are another competitive issue. Future product technology, and market trends will also influence Quantum's strategies.

Direct Competitors

SHUGART ASSOCIATES AND MEMOREX LEAD LOW COST MARKET

Low Cost 8-inch Fixed Disk Drives . Shugart Associates and Memorex dominate the low cost product class. 3M is expected to introduce a competing product in 1981 and CDC in first quarter 1981.

SHUGART ASSOCIATES TO SURPASS MEMOREX IN MARKETPLACE

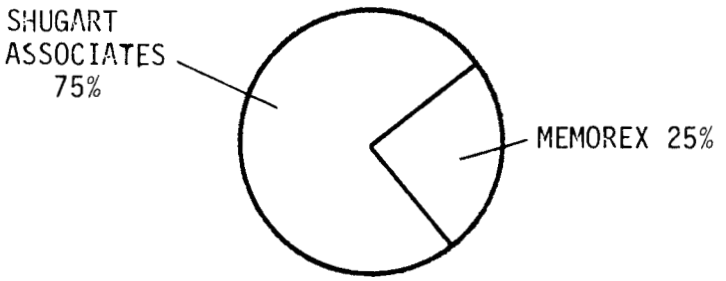
Shugart Associates and Memorex apparently intend to strive for early marketshare dominance in what is projected to be a very rapidly growing market. Shugart Associates needs to protect its very large floppy disk drive customer base from displacement with fixed disk drives other than its own. Memorex sees an opportunity to again make a run at dominating a new OEM market as it has several times in the past. Shugart Associates has been consistently successful at penetrating highly competitive rapid growth OEM markets. Memorex has a sporadic history of OEM market disappointments with minimal successes in low cost products. Shugart Associates' marketshare in the key floppy disk drive marketplace is over ten times larger than that of Memorex. Both companies have set up dedicated operating units to build their fixed disk products. Memorex is forming a new sales force while Shugart Associates is selling through its existing sales organization. Shugart Associates is on schedule to customer commitments made in mid 1979. Memorex is now six months late on commitments made in the same timeframe. Industry observers project the Shugart Associates SA1000 to lead the low cost market segment, see Figure 7, (page 17).

LOW COST/HIGH PERFORMANCE PRODUCT PRICE GAP TO WIDEN

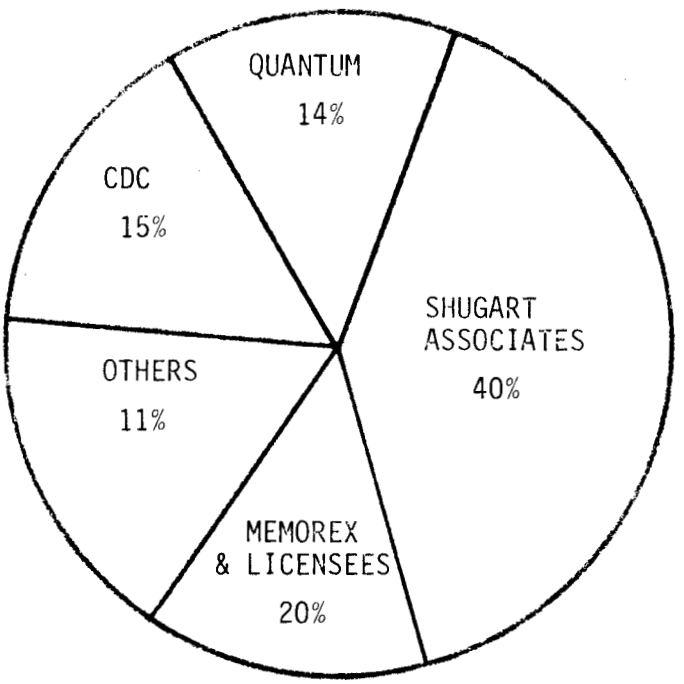
Pricing of low cost products is today artificially high compared to high performance drives due to their early point in product life. Also current demand is in excess of supply. Price spreads between low cost and high performance products will widen to reflect true manufacturing cost differences by 1982 when industry supply approaches demand as shown in Figure 8 (page 18).

NEED FOR SECOND SOURCING AN OPPORTUNITY FOR QUANTUM

Second sourcing has become a concern for customers and suppliers in the peripherals marketplace due to recent painful experience with shortages of floppy disk drives. Competitors have taken different approaches on the issue of second sourcing. Memorex is setting up agreements with Fugitsu and Olivetti to build their Model 101 product primarily for Asian and European markets. Memorex is advising potential customers that these licensees will act as second sources. Shugart Associates' has apparently taken no action to develop alternate sources. The increasingly strong customer recognition of the



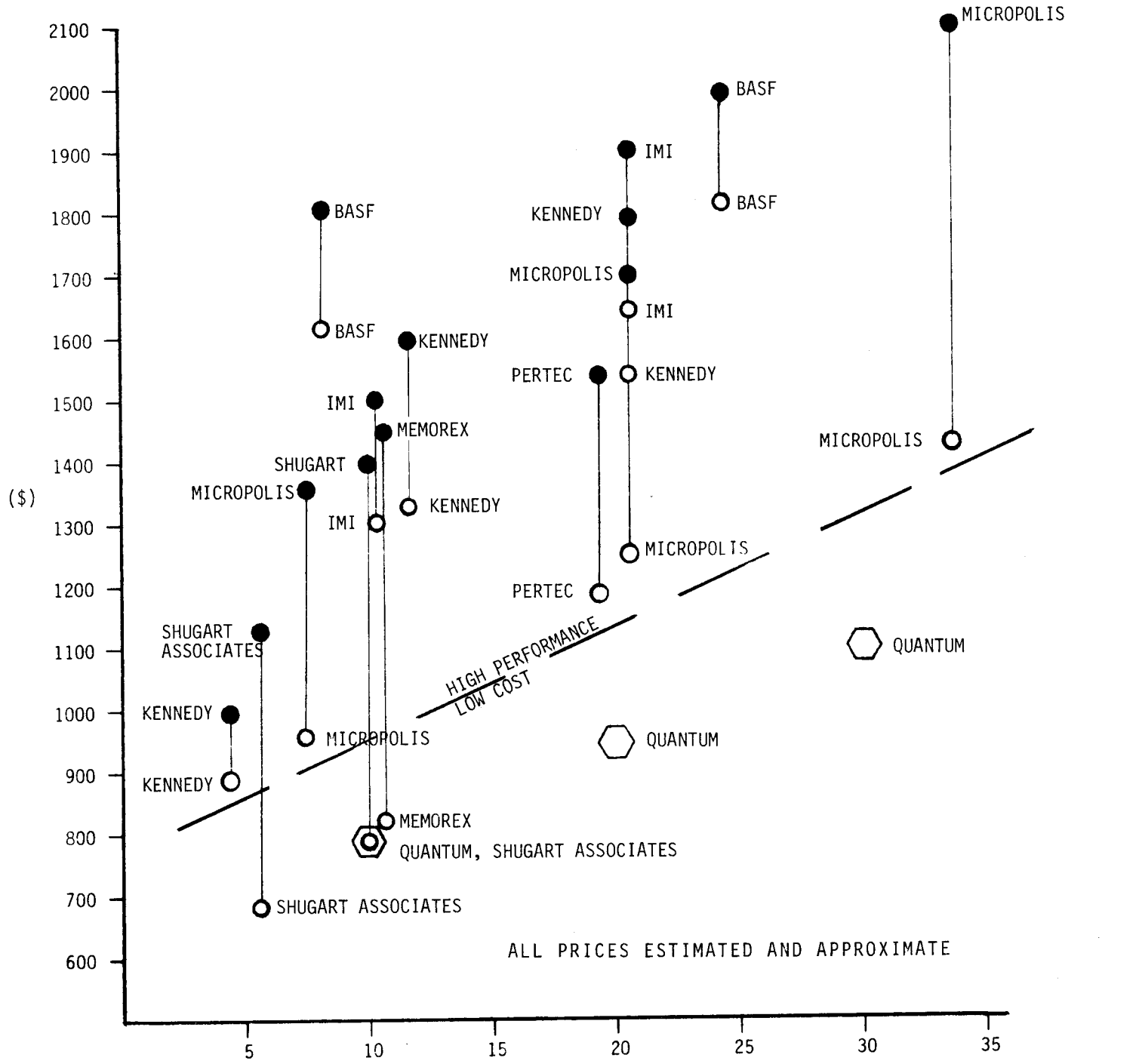
1980—40,000 UNITS, $45 MILLION



1984 - 440,000 UNITS, $450 MILLION

PROJECTED MARKETSHARE
OEM LOW COST 8-inch FIXED DISK DRIVES

FIGURE 7



PRODUCT PRICING

8-INCH FIXED DISK DRIVES

FIGURE 8

need for second sourcing presents a significant opportunity to be addressed by Quantum.

CDC LATE

Control Data Corporation (CDC) is describing an unannounced product (code named "Meadowlark") to customers with first shipments planned in mid 1981. This low cost product is presented as second schedule priority to CDC's fixed and removable media 8-inch products (code named "Lark"). The Lark will be announced at the May 1980 NCC.

3M HISTORICALY WEAK

3M is rumored to be designing a low cost product for market entry in 1981. Poor product planning, weak sales effort, and lack of response to customer needs have limited the success of 3M's O E M products in the past.Serious competition is not anticipated from 3M in this new product area.

VERTICAL INTEGRATION

Current and potential low cost drive competitors have varying capabilities in vertical integration. No competitor has an overpowering advantage over Quantum in vertical integration.

Indirect Competition

LIMITED DEMAND FOR HIGH PERFORMANCE DRIVES IN LOW COST APPLICATIONS

1. High Performance 8-inch Fixed Disk Drives

Where high memory performance is more important than drive cost, high performance 8-inch drives will be considered. Key suppliers and products offered in this class are described in the Appendix. By designing-in higher performance and high cost drive elements, these drive suppliers have based their growth on the strength of what trend may exist to miniaturize products based on larger systems using 14-inch disk drives. Higher actuator, head, disk, servo, and electronics costs will continue to limit the attractiveness of high performance drives in the low cost, floppy disk based system area.

14-INCH DISK PRODUCTS NOT SERIOUS COMPETITION

2. Fixed and Removable 14-inch Rigid Disk Drives

Fourteen-inch disk drives will continue to experience market growth in areas where size is not overly important and higher disk capacities are an advantage. Few 14-inch products are readily compatible with floppy disk based system architectures. Little competition will occur with low cost 8-inch drives.

Future Alternative Products

8-INCH FIXED/ REMOVABLE DRIVES OFFER LIMITED AND HIGH COST REMOVABILITY WITHOUT STANDARDIZATION

1. Fixed/Removable 8-inch Rigid Disk Drives

Small fixed/removable (F/R) disk drives will answer a unique need in the market and ultimately will be successful products. These drives will adequately satisfy memory backup needs in some systems where higher removable media cost, incremental file backup, and restricted disk formatting are acceptable. These products will primarily interest system designers and end users experienced with earlier technology 14-inch disk drives. Significant system interface and software changes would be required to adapt

these drives to floppy disk based architectures. CDC and Memorex have products in this category expected to be announced in mid 1980. Lack of standardization or second sourcing will delay the growth of this produce class. It will likely, however, become a healthy market area by 1983-1985 without significantly impacting the growth of the low cost 8inch fixed disk drive market.

5-1/4-INCH FIXED DISK DRIVES ARE TARGETED AT APPLICATIONS WHERE SIZE IS CRITICAL

2. Mini-Floppy Sized Fixed Disk Drives

Mini-floppy sized (5-1/4-inch) fixed disk drives will become a sizable market area within the next three to five years. They will compete with 8-inch fixed disk drives only in applications where physical size must be significantly smaller than 8inch drives. Cost per byte stored will actually be higher than for 8-inch drives.

Most 5-1/4-inch fixed disk drives will be used in conjunction with mini-floppy disk drives as backup. This will make demand heavily dependent upon applications where small form factor is critical. Word processing and personal computers are primary applications. These are market segments where the cost and performance of any fixed disk drive is only justified in top-of-the-line products.

No de-facto format or compatibility standards exist today. Major suppliers, not yet announced, may later enter with products that can significantly alter the market.

QUANTUM WILL OFFER 5-1/4-INCH FIXED DISK PRODUCT

Quantum will offer a product family in this area when the market direction is more clearly defined, following launch of the 8-inch product line. Currently announced or rumored competitors are Shugart Technology, IMI, Irwin International, and Tandon Magnetics.

HIGH CAPACITY FLOPPY DISK DRIVES NOT SERIOUS THREAT

3. High Capacity Floppy Disk Drives

Higher capacity floppy disk drives will become available in the future but will offer little competition for low cost fixed disk drives. Rather, by providing larger capacity removable media for backup, they will help solidify the acceptance of the floppy disk/fixed disk combination architecture.

BUBBLE MEMORIES TO CHALLENGE ONLY VERY SMALL CAPACITY DISK DRIVES AND NOT BEFORE LATE 1980s

4. Bubble Memories

Bubble memories will compete with fixed disk drives only in very low capacity or hostile environment applications. Bubble memories will be used where memory upgrade capabilities are unimportant and costs of developing new system architectures and software are justified. Very low capacity (under 5 megabyte) 5-1/4-inch fixed disk drives will be the most, and still only moderately, vulnerable to bubble memory competition. Even the most optimistic forecasts of bubble memory capacity growth and price erosion do not project competition with moving head fixed disk drives through the first half of the 1980s.

MARKET FORECAST

LARGE MARKET FORECASTED

Several industry market research specialists have made projections of future growth of the 8-inch fixed disk drive marketplace. Differing forecasting methods were used by individual researchers making direct comparisons between forecasts difficult. While forecasts vary, all project very strong growth of the 8-inch fixed disk drive market, especially the lowest cost products.

Several researchers are today predicting the OEM 8-inch fixed disk drive market to grow to over $700 million in revenue and approximately 400,000 units annually by 1984. Some are also forecasting that low cost products will account for over 85% of all 8-inch drives sold in the same time. Quantum forecasts that total OEM sales will reach $450 million and 444,000 low cost drives in 1984. Quantum projects higher industry unit shipments and lower total revenue than most forecasts. Mini-floppy sized (5 1/4 inch) fixed disk drive OEM market sales are projected to reach $80 million (120,000 drives) in 1984. Figure 9 through 12, (pages 22 through 25) show these forecasts and sources.

QUANTUM'S FORECASTING METHOD

The methodology used to generate Quantum's industry forecast is as follows.

1. Major disk drive end use application areas were defined.

2. Current and projected system shipment forecasts for each application area were compiled from various industry market research firms.

3. Projections of disk drive usage trends were made (percent of various systems utilizing various disk drives) based on industry market researcher's forecasts and direct interviews with major prospective customers' product planners and engineers.

4. Current and future mix of drive sources ("OEM" and "captive") were compiled by application area from historic and projected trends.

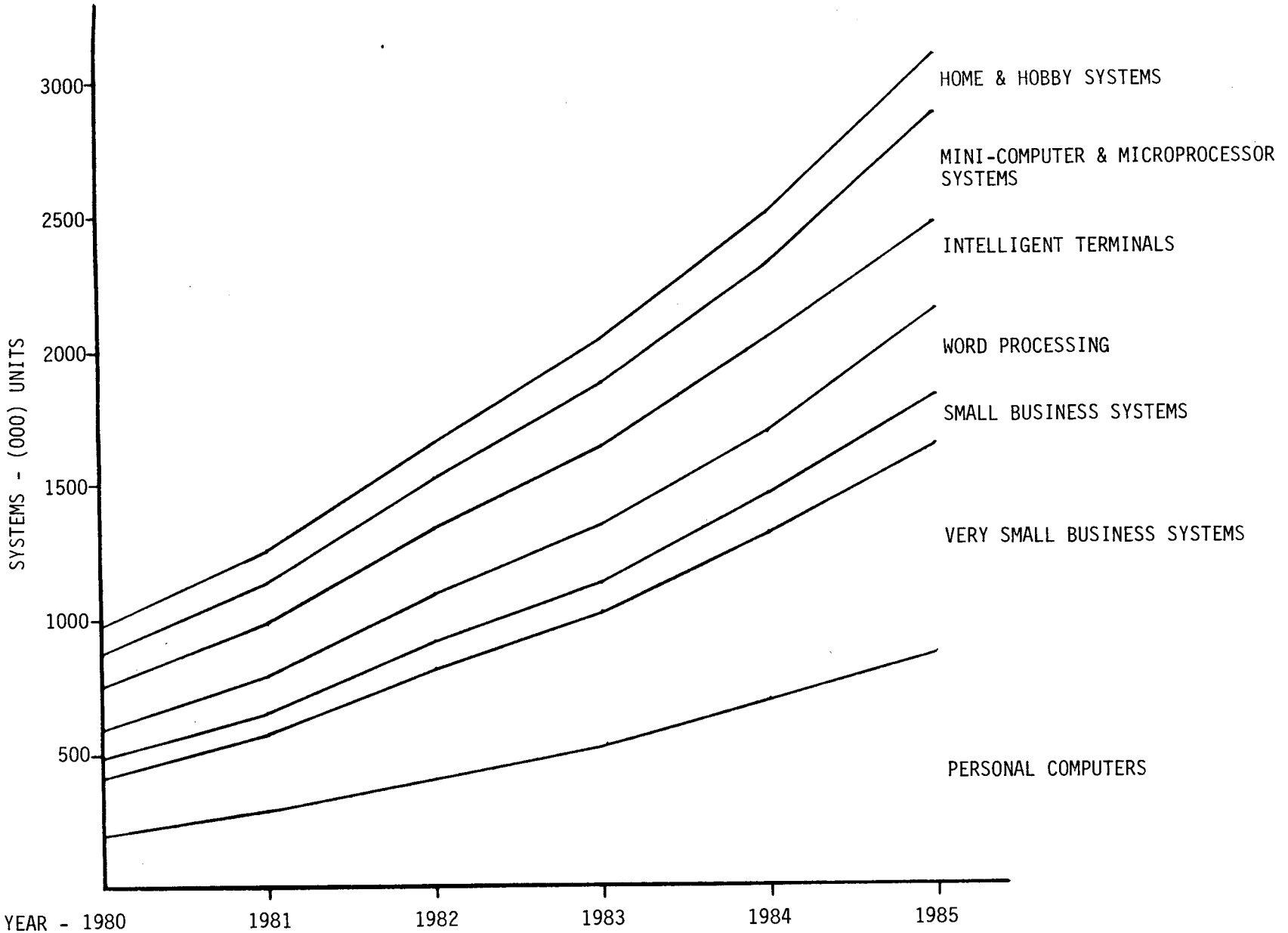
5. Total unit disk drive forecasts were compiled by drive type from percent usage, drive source, and application area projections. The types of disk drive products forecasted were 8-inch low cost, 8-inch high performance and 5 1/4-inch.

6. Average unit price and price erosion trends were projected and applied to unit forecasts to provide revenue forecasts.

PROJECTED DRIVE END USES

Major disk drive end use application areas defined were:

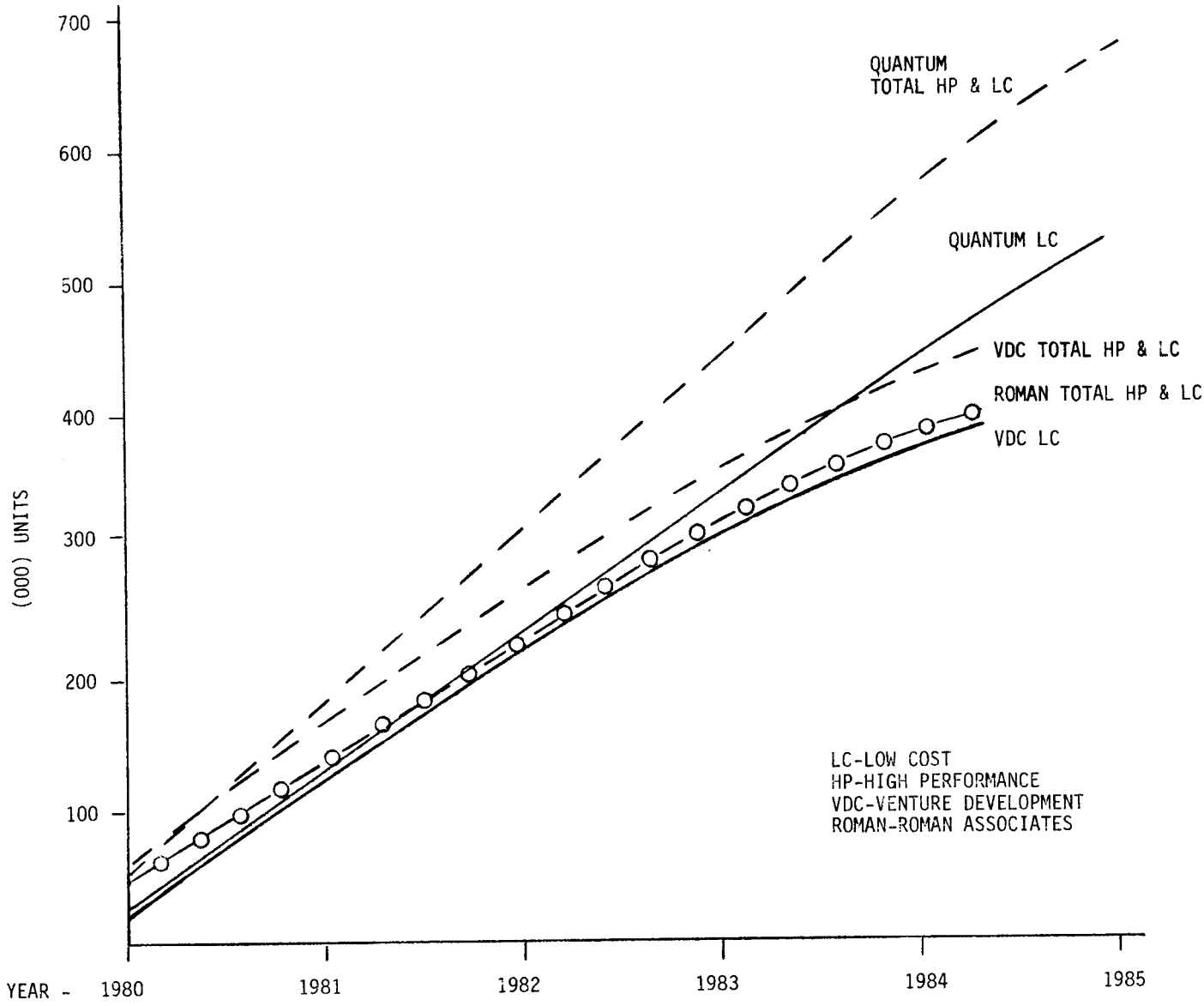
- Small Business Systems
  - Small Business Computers - selling for over $15,000 per system at the end user level
  - Very Small Business Computers - selling for between $8,000 and $15,000 per system



PROJECTED MARKET IN UNITS (SYSTEMS)

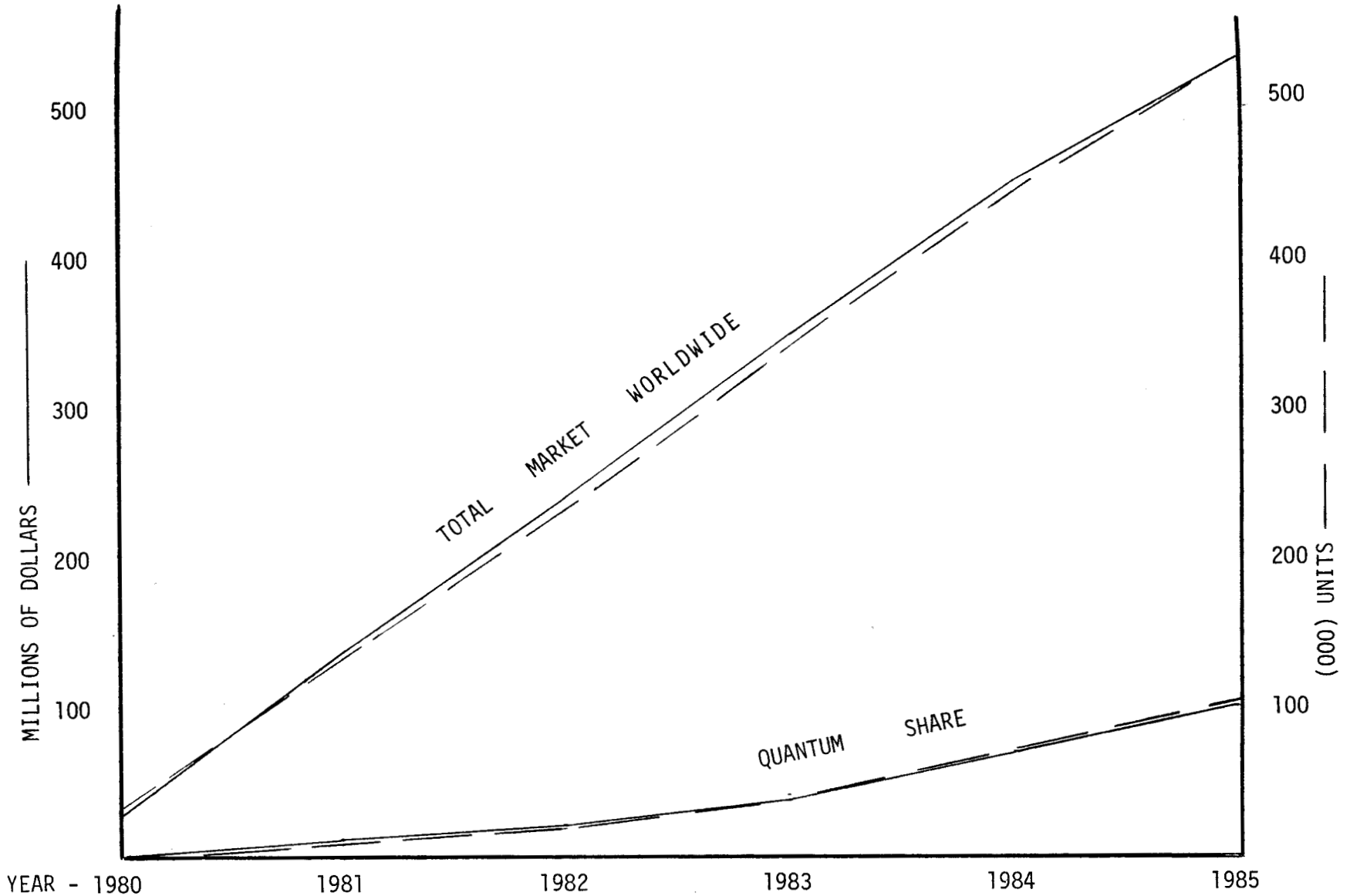
BY END USE APPLICATION

FIGURE 9



PROJECTED TOTAL OEM 8-INCH FIXED DISK DRIVE MARKET

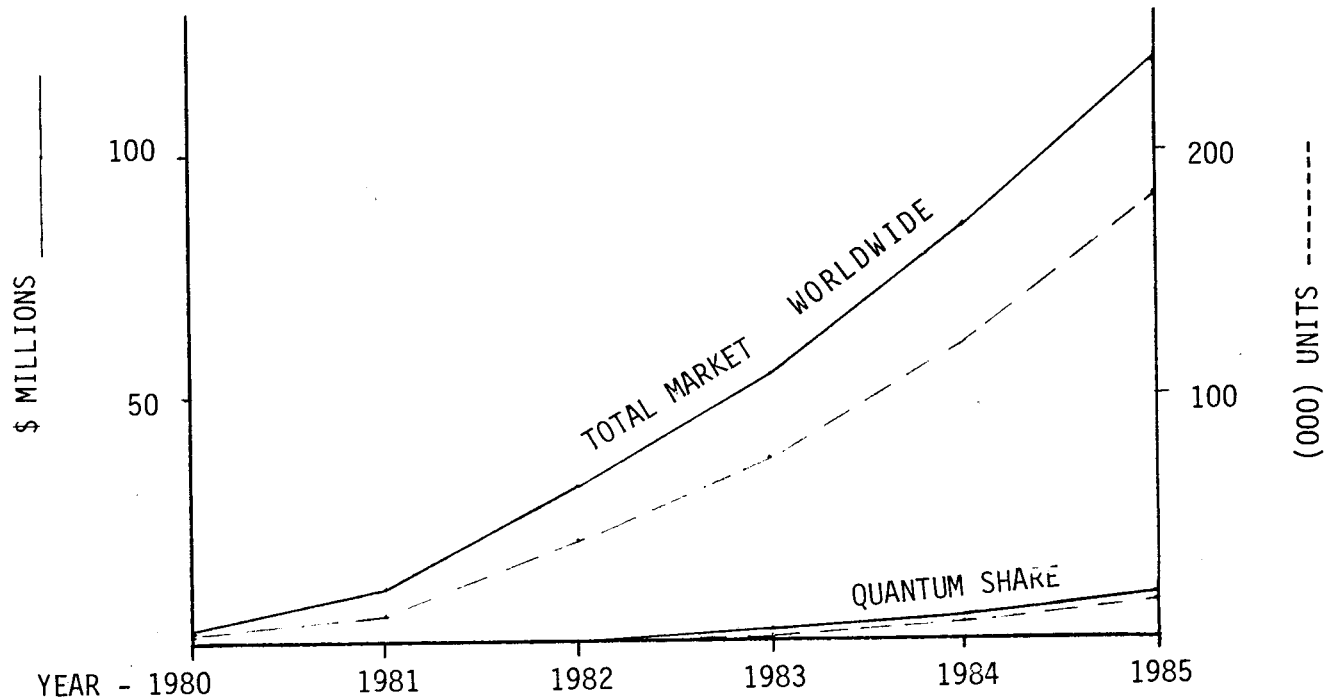
FIGURE 10



QUANTUM

PROJECTED OEM MARKET--LOW COST 8-INCH FIXED DISK DRIVES

FIGURE 11



QUANTUM

PROJECTED OEM MARKET

5¼ INCH FIXED DISK DRIVES

FIGURE 12

- Personal & Home Computers
  - Personal Computers - small desktop computers selling between $1,200 and $8,000 per system
  - Home and Hobby Computers - selling for under $1,200 per system

- Word Processing Systems
  - Stand Alone Wordprocessors - desktop self contained systems
  - Shared Logic Systems - multi-user systems using shared resources
  - Multi-Function Systems - combining major data processing capability with text editing
  - Phototypesetting - large composition systems used in publishing and graphics preparation

- Intelligent Terminals
  - Terminals tied into distributed computing networks yet possessing logic, memory and software for independent data preparation and processing

- Mini-Micro Computers
  - General Purpose Mini-Computers - small mainframe computers
  - Microprocessor Systems - miscellaneous dedicated application microprocessor systems including development systems

QUANTUM'S MARKETSHARE

Quantum plans to secure a minimum 14% marketshare ($63 million revenue of the $450 million market for low cost 8-inch fixed disk drives in 1984. Additionally, $6 million of revenue is planned in 1984 from a 7% marketshare of the $80 million market for 5 1/4-inch fixed disk drives.(Market research reports and comparative disk drive market forecasts and sources are listed in the bibliography in the appendix.)

FUTURE TRENDS

DISK DRIVE TECHNOLOGY TO ADVANCE AT A RAPID PACE

The historic trend of ongoing reductions in the cost and size of data processing devices will continue well into the future. Both user demand and technology evolution will drive costs lower for systems and peripherals. Quantum intends to stay abreast of these trends and build an operating base to contribute to the growth of the market well into the future.

Disk drive technology will continue to evolve and increase in cost-effectiveness. Magnetic media and head technologies will allow an order of magnitude increase in areal recording densities in less than a decade. Thin-film recording heads using semiconductor fabrication techniques introduced this year on large IBM memories will be applied to low cost OEM products within the following two to four years. Higher performance magnetic media, including higher coercivity particles and sputtered or plated thin-film disks will be reliably applied to low cost disk drive in the same time frame. Quantum will be positioned to make use of these developments as the technologies mature. Flexible media products (floppy disks and tape) and removable rigid disk products will also benefit from evolving technology. Optical disks will become available by mid-decade for unalterable memories; full update capability and challenge to magnetic memory will require a breakthrough in technology not likely in this decade.

Advancing semiconductor technology will feed the computer industry more powerful and cost effective digital and analog processing capability. All segments of the industry will benefit.

QUANTUM TO BENEFIT FROM ADVANCES

Quantum plans to maintain a consistent strategy to bring increasingly lower cost memory capability into the OEM market. Market trends and technology evolution will be monitored closely to assure profitable response to change.

DATA BACKUP PRODUCTS

FIXED DISK SYSTEMS NEED BACKUP

Major OEM system manufactures are setting various courses relating to the need to backup data on fixed disk drives. The backup function provides the ability to load or unload data from the disk to a removable media. The removable media provides a means of data interchange, unlimited off-line storage, and safety in the event the fixed disk drive should fail.

On larger systems, the backup function is provided by reel to reel 1/2 inch tape drives. Floppy disks or small tape cartridge drives are used on lowest cost systems.

IBM provides no backup on some systems, claiming that Winchester technology is so reliable that backup is not needed.

Small system manufactures, however, are more concerned about backup. The three most popular backup subsystem options are described in Figure 13 (page 29). Lowest cost systems will use floppy disks for backup to 10 to 20 MB and tape cartridges for 10 to 50 MB capacity. Higher performance small systems will use fixed/removable 8-inch products. Because Quantum's product span such a large capacity range, it is expected that both floppy disk and tape cartridges will be used by Quantum's customers for the backup function. Quantum will benefit from the trend to adapt tape cartridge drives to match floppy disk/low cost fixed disk system architectures. Background on data backup products is provided in the Appendix.

SUBSYSTEM COST - 10MB (1)					BACKUP FUNCTION					
BACKUP		DRIVE FUNCTION COSTS			MEDIA CAPACITY PER UNIT (MB)	OPERATOR INTERVEN-TIONS/10MB BACKUP (2)	MEDIA COST/UNIT	MEDIA COST/MB	MEDIA COST/10MB (3)	MEDIA COST/20MB (3)
TYPE	COST	8"FIXED DISK DRIVE	CONTROLLER	TOTAL						
FLOPPY DISK	$500	$1000	$500	$2000	1.6	7	$5	$4	$40	$80
TAPE CARTRIDGE	$500	$1000	$600	$2100	20	1	$20	$1	$20	$20
FIXED/ REMOVABLE 8" RIGID	INCLUDED	$1600	$700	$2300	8-12	1-2	$125-$150	$12-$15	$125-$150	$250-$300

NOTES:

1. Medium quantity OEM prices
2. Operator interventions per 10MB backup defined as the number of times an action must be taken (insert or change media) to backup a 10MB fixed disk
3. Media cost for "x"MB defines cost of discrete units of media required to backup "x"MB fixed disk
4. 8-inch fixed/removable drive characteristics are projected from Memorex & CDC announcements

MEMORY SUBSYSTEMS ANALYSIS BY BACKUP TYPE

FIGURE 13

MANAGEMENT TEAM AND ORGANIZATION

FOUNDERS EXPERIENCED IN COMPUTER PERIPHERALS

Quantum's founders are a team of experienced engineering, manufacturing, and marketing managers from leading computer memory manufacturers. Five of the six founders were recent employees of Shugart Associates, where they were directly responsible for many of Shugart's product successes. Specifically, the engineering project managers for both of Shugart's successful low cost fixed disk drives, the SA4000 and SA1000, are Quantum founders. Each founder has from 6 to 30 years of experience directly in line with key requirements for the success of Quantum Corporation. In addition to the following, detailed resumes of the Quantum founders are in the Appendix.

JIM PATTERSON

James L. Patterson, 42, is President of Quantum with over 20 years of experience in the computer peripherals industry. He was most recently Vice-President of Engineering at System Industries and General Manager of Silonics (an S.I. subsidiary). Jim managed an engineering team of 30-50 people in the development and support of S.I.'s computer memory subsystem product line from sales of $2.5 million to over $25 million in six years. He also served as General Manager of Silonics' low cost printer operations for one and a half years from initial funding through delivery of first units to customers. Patterson was Director of Product Development for communication products and Director of Business Planning for disk drive and microfilm products at Memorex for three years. Jim began his career with eleven years at IBM where he held various engineering and general management positions. He has a BSEE degree from the University of Colorado.

DAVE BROWN

David A. Brown, 35, heads Quantum's engineering team, and was most recently Director of Floppy Disk Drive Engineering at Shugart. Dave was responsible for the development and manufacturing start-up of the highly successful mini-floppy disk drive product line and most recently for the redesign of Shugart's SA-850 double sided 8-inch floppy disk drive. He was largely responsible for the design and manufacturing start-up of Shugart's in-house magnetic head operation. Prior to Dave's seven years with Shugart, he spent three years at Memorex as a mechanical engineer on various rigid and flexible disk products. Earlier experience included Peripheral Data Machines and Pratt & Whitney Aircraft. Dave has four patents issued relating to rotating memories. In addition to 12 years of experience, Dave earned a BSME from San Jose State and an MSME from the University of Santa Clara.

HAROLD MEDLEY

Harold C. Medley, 56, leads manufacturing for Quantum. Harold has thirty years of experience in various development and manufacturing engineering roles with Shugart Associates, Memorex, IBM, Stromberg Datagraphix, Battelle Institute, and Phillips Petroleum. In seven years at Shugart, Harold held positions of Director of Engineering, and Director of Manufacturing Engineering. He was directly responsible for the development of Shugart's unique floppy disk drive manufacturing line concept, a major contributor to Shugart's success. Earlier experience, including thirteen years at IBM, covered development engineering responsibility for such

products as microfilm processing equipment, xerographic copiers and printers, and optical computer memory devices. Harold has ten patents issued covering a wide range of product technologies. He has a BME degree from Ohio State University.

JIM McCOY

James M. McCoy, 33, heads Quantum sales and marketing. He has thirteen years of experience in various engineering, manufacturing, and marketing roles relating to magnetic memory devices. Most recently Jim spent two years at Shugart Associates where he was Manager of Product Management in Marketing, responsible for planning and sales support for all of Shugart's product lines. McCoy was promoted from the position of Product Line Manager for floppy disk drives after successfully heading a corporate task force to strengthen production volume and quality of Shugart's 8-inch double sided floppy disk drives. Prior to Shugart, he spent three years at Verbatim as Manufacturing and Marketing Product Manager for data cartridge products. McCoy held various manufacturing and marketing management positions for Infomag and AVCO/Cartridge Television. He was a manufacturing engineer at IBM for three years. He holds a patent in magnetic head technology and has a BS degree in Industrial Engineering and Management from San Jose State.

DON DANIELS

Donald V. Daniels, 41, heads electrical engineering for Quantum. He has fifteen years of experience in computer peripheral products. Don spent six years at Shugart where he was the senior electrical engineer in the development of Shugart's products. Daniels was the Engineering Project Manager responsible for the SA4000 disk drive, the first successful truly low cost 14-inch fixed disk drive which became the model for the creation of the low cost OEM fixed disk drive marketplace today. He was earlier an Engineering Manager while at Memorex for five years where he was responsible for development of several microfilm, terminal, and printer products. For three years, he was a development engineer at IBM on electronics design for 2311 to 3330 disk drive products. Don holds three computer peripherals patents and a BSEE degree from San Jose State.

JOEL HARRISON

Joel N. Harrison, 32, heads mechanical engineering for Quantum. Joel has extensive direct experience in the design of low cost rigid disk drives in both 14-inch and 8-inch disk sizes. He was with Shugart Associates for two years as Engineering Manager for the SA1000 line of low cost 8-inch fixed disk drives. He was responsible from design concept to manufacturing start-up for what has become the most successful product in the low cost fixed disk drive marketplace. Joel also spent four years with Hewlett Packard as development engineer on various 14-inch cartridge and fixed disk drives and the 8450 spectrophotometer. He holds a BSME from Cal Poly and an MSME from Cal Tech.

QUANTUM ORGANIZATION

The Quantum organization will have four groups reporting to the President: Marketing, Engineering, Manufacturing, and Finance. An organization chart is shown in Figure 14 (page 33). A unique aspect of the organization is that manufacturing engineering and test engineering will be a part of Engineering.

Other key employees will be added to the Quantum team. High priority additions will be a sales manager, manufacturing manager, materials manager, and financial executive. Figure 15 (page 34) shows the Quantum manpower plan. Employee compensation and benefits will be competitive with leading companies in the area. Key employees will be incented with equity instruments.

Quantum Corporation's general legal counsel is:

Arthur F. Schneiderman
Wilson, Sonsini, Goodrich & Rosati
Professional Corporation
Two Palo Alto Square, Suite 900
Palo Alto, California 94304

The company's patent, trademark and copyright counsel is:

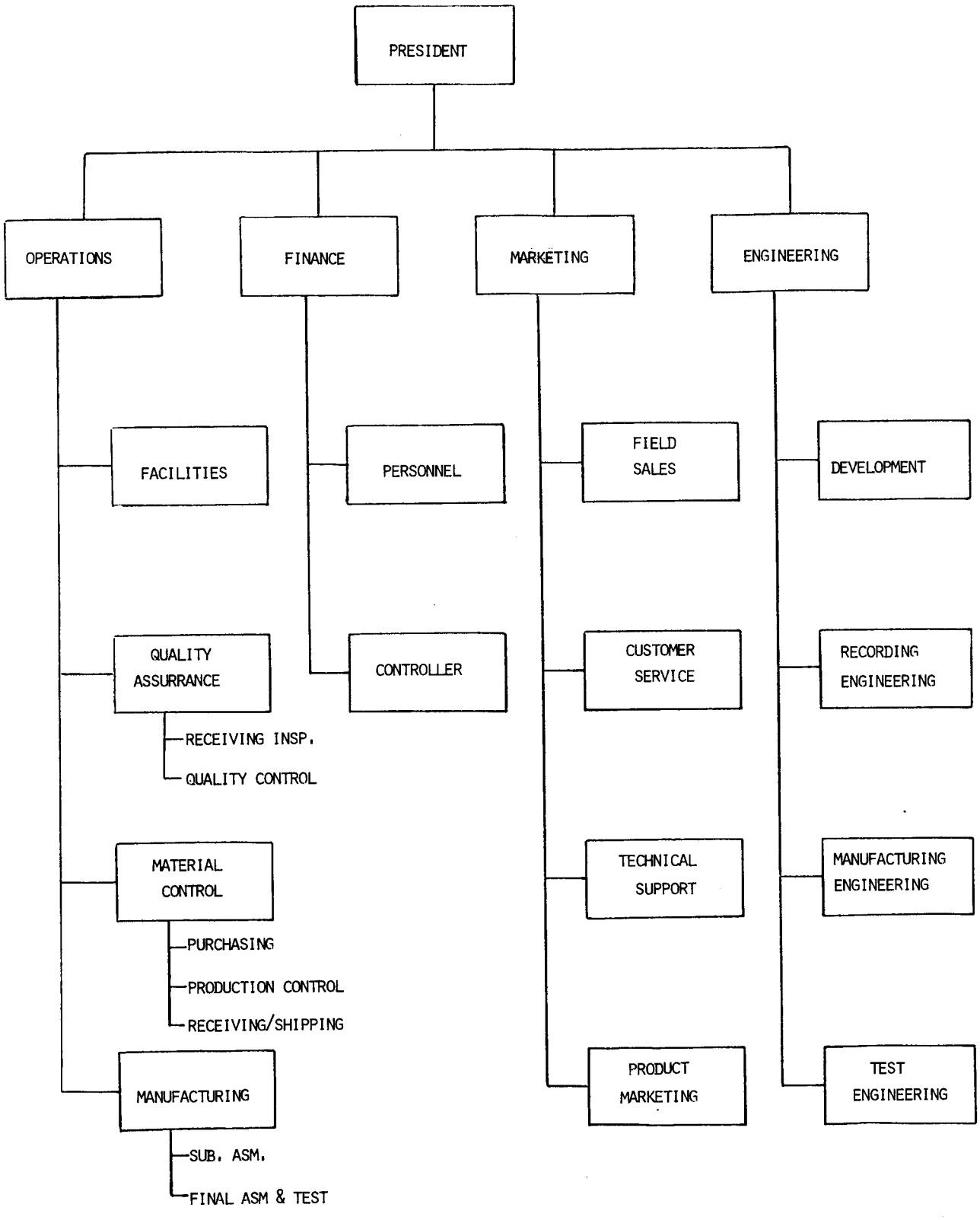
David B. Harrison
Owen, Wickersham & Erickson
A Professional Corporation
433 California Street, 11th Floor
San Francisco, California 94104

The company's auditor is:

Arthur Young & Company
101 Park Center Plaza, Suite 1200
San Jose, California 95113

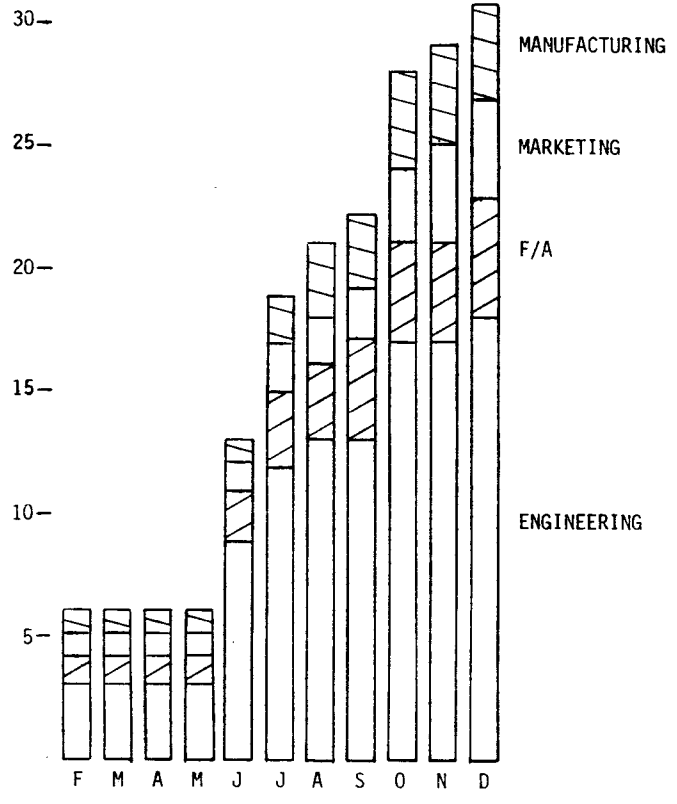
The company's bank is:

Bank of America
444 South Mathilda Avenue
Sunnyvale, California 94086

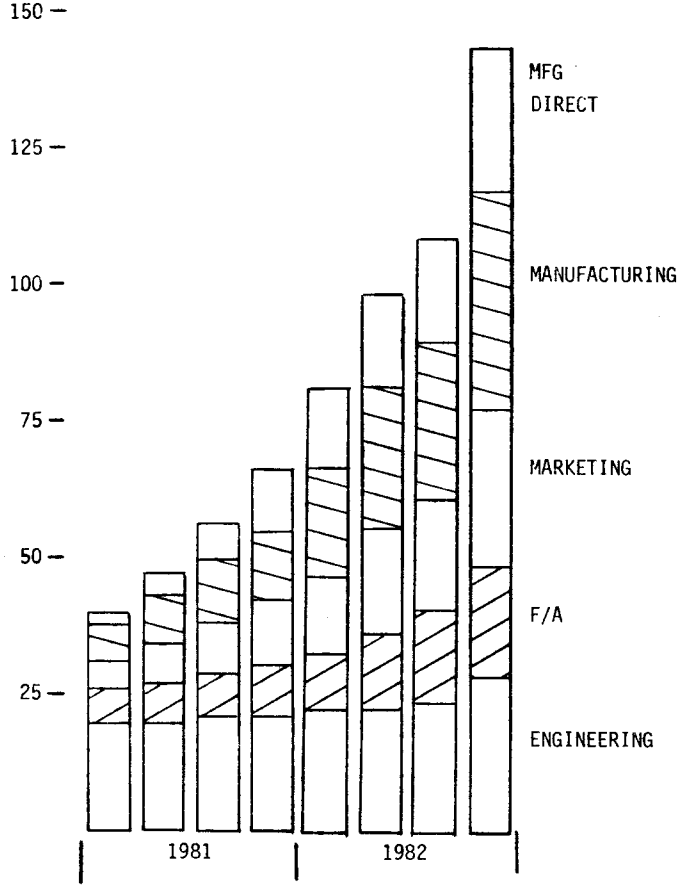


QUANTUM ORGANIZATION CHART

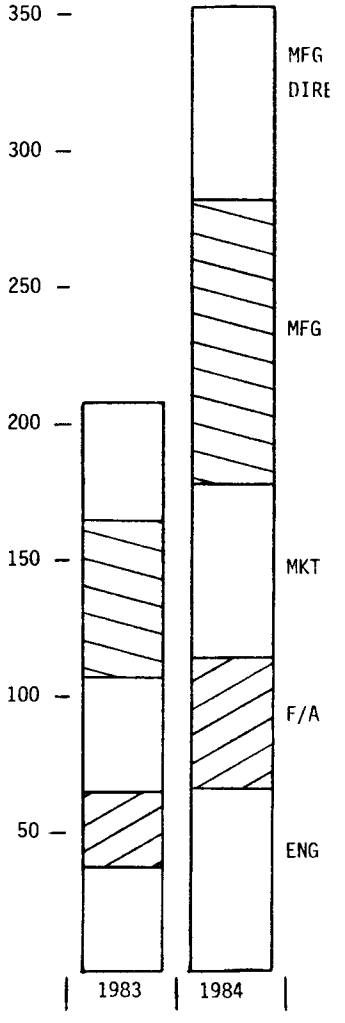
FIGURE 14



1980 MANPOWER PROJECTION
(BY MONTH)



81/82 MANPOWER PROJECTION
(BY QUARTER)



83/84 MANPOWER PROJECTION
(BY YEAR)

QUANTUM MANPOWER PLAN

FIGURE 15

OPERATING PLAN - INTRODUCTION

QUANTUM'S CORPORATE GOALS

Quantum plans to build a profitable position in the OEM low cost fixed disk drive marketplace with sales over $70 million per year in 1984. Initial products will be a family of 8-inch fixed disk drives introduced in 1980. Follow-on products with 1982 introduction will be a family of 5-1/4-inch fixed disk drives. Quantum's unique contribution to the market will be to provide lowest cost products, compatible with industry standard drives, yet offering unique capacity and performance advantages.

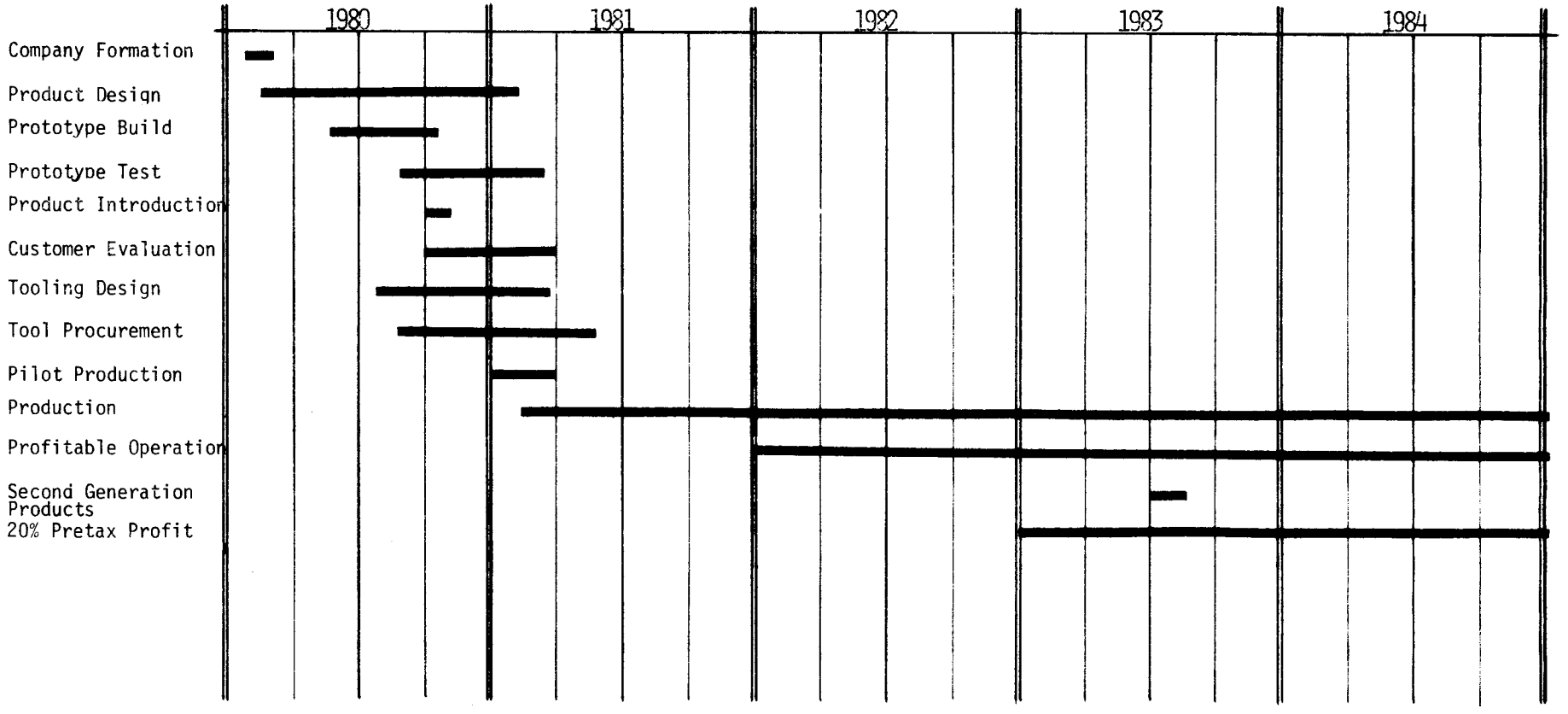
Quantum's first products will be 10, 20, and 30 megabyte disk drives compatible with Shugart Associates 5 and 10 megabyte SA1000 drives. First Quantum units will be available by October 1980 with production shipments beginning in January 1981.

Quantum will market worldwide to OEM customers in small business system, word processing, personal computer, intelligent terminal and mini and micro computer marketplaces. Sales are projected to be $3.7 million in 1981, $15 million in 1982, $37 million in 1983 and $70 million in 1984.

Both design and manufacturing engineering will be focused in one function, lead by a team of experienced engineers now entering the design of their third generation of low cost fixed disk products. Innovative combinations of reliable, mature technologies will be utilized rather than radical leaps in unproven technology.

Manufacturing will be based on a modular assembly line concept to permit smooth, incremental expansion of production capacity. Well managed material functions will be a high priority due to the high ratio of materials to labor costs in Quantum's products.

Financial plans call for a total equity requirement of $5 million. The company will reach profitability by yearend 1981 and sales of $70 million in 1984. Gross profits over 40 percent will be reached by fourth quarter 1982. Pre-tax profits of 20 percent or better are projected by 1983. A schedule of Quantum's key events is shown in Figure 16, (page 36).



QUANTUM KEY EVENTS SCHEDULE

FIGURE 16

Corporate Objectives

MAJOR CORPORATE OBJECTIVES

The founders of Quantum Corporation have formulated a set of major objectives which express the broad aims and direction of the company. This set of objectives covers all aspects of Quantum's business operation including financial, employees, customers, suppliers, products, management and community.

FINANCIAL OBJECTIVES

In order to realize all of the company's goals, Quantum must first achieve its financial objectives. The company will grow to become a major contributor to the industry and marketplace. This growth will require external financial resources. Quantum is committed to early profitability and growth to profit levels equal to the best in this industry. Growth to profitable operation will make possible an attractive return to Quantum's shareholders and will enable the company to have the financial resources required to meet other goals. Profitability is the best single indicator of the company's accomplishments and the foundation for its success.

EMPLOYEE CONTRIBUTION AND SHARE OF SUCCESS

The highest level of accomplishment will be achieved through the success of outstanding people. Quantum will select, train and motivate the right people. These people will work as a team in an atmosphere in which excellence is expected. Individual excellence will be recognized and rewarded giving each person a sense of satisfaction and accomplishment from their work. In this way Quantum's people will share in the company's success.

CUSTOMERS

Quantum will make a contribution to the success of its customers. The company's products and services will provide value which will result from an understanding of and a responsiveness to the needs of its customers. The ability to recognize and respond to the customers' needs will grow from a relationship of mutual respect and trust. All of Quantum's people will be keenly aware of the company's customer and market orientation.

SUPPLIERS

Quantum will establish equivalent relationships with its suppliers. Suppliers will be selected to obtain the optimum quality product at the most favorable cost. Quantum's people will conduct their business in a manner which will leave no question of their intentions or business ethics. Quantum will expect its suppliers to operate in the same honest and straight forward manner.

PRODUCTS

The company's products will provide value which is real and measurable in terms of cost, performance, function, and quality. All of the company's products will be designed and manufactured with the proper balance between quality and cost. This will assure that the customer receives maximum value.

CONTRIBUTION Quantum will introduce new products only when the company's technical and high volume production expertise will allow it to excel.

MANAGEMENT The management of Quantum will:

Set priorities to assure focus on critical issues.

Create through example a sense of urgency driving efforts to a conclusion.

Set objectives and expect dedicated effort to meet commitments.

Be firm but fair in all relations with employees, customers and suppliers.

Set and demand the highest standards of excellence with no compromise.

Recognize contribution and reward achievement.

Be open, communicative and solicit maximum employee involvement in all activities.

Management action will foster integrity in all aspects of the business.

This approach will foster initiative, creativity and will allow freedom of action in individual attainment of well-defined objectives

With the successful accomplishment of the above objectives the company will prosper and grow and will reward its shareholders and employees, and contribute to customers, suppliers and thus to its community.

MARKETING PLAN

THREE LEVEL SALES PROJECTION

Sales Projection

Quantum's sales have been projected at three levels:

I. Business Plan - Base (Lowest) Level
II. Operating Plan - Internal Planning Level
III. Target Plan - Sales Target

Sales levels projected are as follows:

Level	Year	Revenue in Millions of Dollars 1981	1982	1983	1984
I (Low)		3.7	15	37	69
II (Med)		4.6	19	46	85
III (High)		5.5	23	55	100

STRATEGY TO FOCUS ON UNIQUE BUT COMPATIBLE PRODUCTS

Marketing Strategy

Quantum's strategy will be to service our customers by taking maximum advantage of our position as the first (and only to date) independent, single product focused supplier of Shugart Associates compatible low cost fixed disk drives. Direct price and delivery competition with Shugart Associates will be minimized by offering products compatible with SA1000 products, providing both high drive capacity and faster access time. Rather than competing headon with Shugart Associates against specific 5 and 10 megabyte products, Quantum will focus on providing complementary product extensions of 20 and 30 megabyte capacities. Direct second sourcing of SA1004 10 megabyte drives will be presented as an additional advantage of the Quantum product family. Streamlining of customers' evaluation and adoption of Quantum products will be accomplished by sharing customer experience and investment made in evaluation, integraion, and software development for Shugart Associates' products. Key customer selling points will be based on capacity, cost, compatibility, support, and delivery advantages.

PRICING TO BE COMPETITIVE

Pricing will directly match competitors on published price lists and be as aggressive as necessary to secure major contracts with high growth potential. (Actual OEM contract prices are generally individually negotiated rather than set by published price lists.) Quantum will be capable of profitably pricing over ten percent below competitors' projected prices for equivalent capacity products. Higher capacity products will be priced by standard industry increments of an additional 20 to 25 percent for each doubling of capacity. Initially price aggression will not have to be heavily used as Quantum should be operating in a supply limited environment through 1981. Quantum is projecting and prepared for significant price erosion in the maketplace. Quantum's more cost-effective design will produce higher gross margins at any given price compared to current generation competing products. Only through future re-designs can competitors expect to meet Quantum's current design product cost.

LEAD CUSTOMER KEY, THEN GROWTH ACCOUNTS TARGETED	Securing at least one major "lead" or reference account and several medium size quick reaction (rapid evaluation and production release) accounts will be first sales priority. Once shipping volume of product to a small group of large and medium size accounts, Quantum will broaden its sales efforts to include development of smaller accounts and establishment of trade distributor and computer retail accounts. Quantum will initially concentrate sales in the U.S. market and will move into international markets (primarily Europe) through both direct and rep/distributor sales.
UNIQUE AGREEMENTS OFFERED TO STRATEGIC ACCOUNTS	Quantum's early strategy will be to selectively utilize manufacturing rights and licensing agreements to aid in securing "lead" accounts. Preferential purchasing agreements (Partially prepaid contracts, joint development funding, etc.) will be selectively offered to key accounts to provide early delivery commitments, preferential pricing, and manufacturing rights. Broad establishment of "second source" competing OEM supplier agreements (such as Memorex's apparent approach) will <u>not</u> be a Quantum strategy. Custom product configuration will be considered only if there is significant long term strategic advantage to Quantum and the design and manufacturing development activity required will not diffuse the primary focus.
DIRECT SALES ORGANIZATION PLANNED	Sales will be done on a direct basis due to the small, concentrated customer base. Manufacturers representatives, distributors, and agents will be used only where geographically (U.S.) or politically (international) required or necessary to rapidly open significant market opportunities.
CUSTOMER TECHNICAL SUPPORT IMPORTANT	Customer technical support and support products will be key in Quantum's strategy. A marketing technical support organization will be built in fourth quarter 1980. A service and field engineering depot will be established on the east coast when required by the customer base and field installed drive population (target 1982). Product documentation will be extensive (OEM manual, service manual, application notes, field spares guide, etc.) and available with evaluation unit shipments. Customer training classes will be offered in drive operation, design theory, and field repair. Support products will be provided including drive exercisers and controllers.
COMPETITIVE WARRANTY PROVIDED	Quantum's competitive warranty will include a 45 day customer acceptance period and a 12 month limited warranty. Customers will receive a full parts, labor or replacement warranty for defects found within 45 days of shipment of product. In addition, a parts-only warranty for user serviceable parts, and a full parts and labor warranty for the non-user serviceable HDA (head disk assembly) will apply for a total of 12 months. Service and refurbishment will be made available to customers for out-of-warranty products on a labor and materials and fixed fee basis.

ADVERTISING AND PROMOTION FITTING NORM OF SUCCESSFUL OEM'S

Advertising and promotion will be primarily through trade press, shows, and direct customer contact. Product announcement will be made directly to key target accounts and later through advertising in trade press periodicals (target third quarter 1980). National and major regional trade shows will be attended, with Quantum exhibiting beginning in 1981. A customer hospitality suite will be provided at the 1980 NCC but no product will be shown. An outside advertising agency will be contracted in third quarter 1980.

MARKETING ORGANIZATION

The Quantum marketing organization will consist of Field Sales, Customer Service (order processing), Technical Support, and Product Marketing (sales support, product planning, advertising, and public relations). Initially, Customer Service, Technical Support and Product Marketing will be combined. Sales will be based at the home office, with first field offices planned in late 1981.

KEYS TO SUCCESS IN THE OEM MARKETPLACE

Keys to Success

Keys to success in the OEM marketplace are straightforward. An organization needs to out-perform the competition in the following areas:

- Market Driven Organization
  - Responsiveness to customer's needs
  - Customer access to and attention from top managment
  - Strong sales and marketing commitment
- The Right Product
  - Optimum performance for customer needs
  - Lower cost per function
  - High quality
  - High reliability in field
  - Ease of integration into customer products
  - Timing of release and delivery appropriate to customer needs
  - Clear growth path for follow-on products
- Strong Team
  - Depth in key design and manufacturing technologies
  - Strong, highly motivated sales and marketing
  - Commitment to market response and customer support
  - Focus on product, market and results
- Execution
  - Meet commitments--especially delivery
  - Flexibility to changing customer needs
  - Ability to grow with customer requirements
  - Maintain profitability to support growth

CUSTOMER SALES PRESENTATION

The Quantum Sales Presentation

Quantum will offer a unique combination of product benefits and features to OEM customers. Key selling points will be cost, capacity, compatibility, performance, support, and delivery. A preliminary product specification is shown in Figure 17 (page 43). Following is an outline of Quantum's sales presentation for the initial product family offering.

Product Objectives

- o To offer a fixed disk drive to meet the needs of state-of-the art small computer system designs
  - Utilizing proven "Winchester" technology
  - Lowest $/M-byte in its capacity range
- o To offer OEM's a highly cost-effective alternative and upgrade systems currently using multiple floppy disk drives
  - Increased capacity
  - Increased throughput
  - Decreased access time
- o To provide a significant system enhancement with minimum of system design and integration impact
  - Form factor same as standard 8-inch floppy disk
  - Compatible "floppy like" interface
- o Shugart Associates SA1000 compatibility
  - Electrical connections (pin-outs) same as SA1000 and industry standard floppy disk drives
  - User option configurable as single drive or emulation of multiple 5 or 10 M-byte drives
  - Same DC power supply requirements
  - AC motor saves DC power supply costs over DC motor designs

MECHANICS OF OEM SALES

OEM Sales Process

The OEM sales development process is a complex and often time-consuming courtship. Successful OEM relationships become marriages as major investments are made by both suppliers and customers in the evaluation and later field support process. Multiple source supply contracts are becoming increasingly common, however, as both suppliers and customers recognize the risks inherent in sole source arrangements. Contracts are normally one to two years in length and price escalator clauses are beginning to be made a part of second year pricing. Product compatibility, price, quality, service support, and delivery become key aspects of multiple source supply

PERFORMANCE SPECIFICATIONS

CAPACITY	Q10	Q20	Q30
UNFORMATTED			
PER DRIVE	10.66Mb	21.33Mb	32.00Mb
PER SURFACE	5.33Mb	5.33Mb	5.33Mb
PER TRACK	10.40Kb	10.40Kb	10.40Kb
FORMATTED (MFM)			
PER DRIVE	8.40Mb	16.80Mb	25.20Mb
PER SURFACE	4.20Mb	4.20Mb	4.20Mb
PER TRACK	8.20Kb	8.20Kb	8.20Kb
PER SECTOR	256 BYTES	256 BYTES	256 BYTES
SECTORS/TK	32	32	32
TRANSFER RATE	4.34Mbits/sec	4.34Mbits/sec	4.34Mbits/sec
ACCESS TIME			
TK TO TK	15ms	15ms	15ms
AVERAGE	50ms	50ms	50ms
MAXIMUM	100ms	100ms	100ms
AVG.LATENCY	10ms	10ms	10ms

FUNCTIONAL SPECIFICATIONS

ROTATIONAL SPEED	3125RPM	3125RPM	3125RPM
RECORDING DENSITY	6270bpi	6270bpi	6270bpi
FLUX DENSITY	6270fci	6270fci	6270fci
TRACK DENSITY	345tpi	345tpi	345tpi
CYLINDERS	512	512	512
TRACKS	1024	2048	3072
R/W HEADS	2	4	6
DISKS	1	2	3
INDEX	1	1	1

PHYSICAL SPECIFICATIONS

ENVIRONMENTAL LIMITS
AMBIENT TEMPERATURE = $50^{o}$to 115^{o}F($10^{o}$to 46^{o}C)
RELATIVE HUMIDITY = 8% to 80%
MAXIMUM WET BULB = 78^{o} non-condensing

AC POWER REQUIREMENTS
50/60Hz±0.5Hz
100/115VAC Installations = 90-127V at 1.1A Typical
200/230VAC Installations =180-253V at 0.6A Typical

DC VOLTAGE REQUIREMENTS
+24VDC±10% 2.8A Typical during seeking
(0.2A Typical steady state)
+5VDC±5% 3.6A Typical
-5VDC±5%(-7 to -16VDC optional) .2A Typical

MECHANICAL DIMENSIONS

	RACK MOUNT	STANDARD MOUNT
HEIGHT =	4.62 in.(117.3mm)	4.62 in.(117.3mm)
WIDTH =	8.55 in.(217.2mm)	9.50 in.(241.3mm)
DEPTH =	14.25 in.(362.0mm)	14.25 in.(362.0mm)
WEIGHT =	17 lbs.(7.7Kg)	17 lbs.(7.7Kg)

HEAT DISSIPATION = 400 BTU/HR. TYP (120 WATTS)

RELIABILITY SPECIFICATIONS

MTBF: 8,000 POH typical usage
PM: Not Required
MTTR: 30 minutes
COMPONENT LIFE: 5 Years

ERROR RATES:
SOFT READ ERRORS: 1 per 10^{10} bits read
HARD READ ERRORS: 1 per 10^{12} bits read
SEEK ERRORS: 1 per 10^{6} seeks

QUANTUM PRODUCT SPECIFICATIONS

FIGURE 17

situations. Manufacturing rights are commonly included in supply contracts but rarely exercised by customers. The process of developing OEM accounts is described as follows:

Action	Topic	Milestone
Introduction and Initial Sale	1-3 months	Evaluation order
Product Evaluation	2-4 months	Product qualification
Integration into Customer Production Schedule	1-6 months	OEM contract and initial release
Delivery Ramp & Support	1-12+ months	Additional release and follow-on contract

This process is often shortened when there is unique advantage to the customer to do so (such as second source requirements, price, delivery, performance, quantity, or reliability). Compatibility with already utilized products (such as the SA1000) streamlines the evaluation process and strengthens the benefits of second sourcing. The sales strategies of Quantum will take maximum advantage of these factors.

TYPICAL TARGET CUSTOMERS

Target Customers

Quantum's initial customers will be in the small business system, personal computer, word processing, intelligent terminal, and mini and micro computer marketplaces. Following are typical target OEM customers by application:

1. Small Business Systems
   HP, UNIVAC, Wang, Four Phase, Datapoint, Mohawk, Nixdorf, Cado, Basic 4, Qantel

2. Personal Comuters
   Apple, Tandy, Commodore, Northstar

3. Word Processing (including photo-typesetting)
   AES/Lanier/Wordplex, Varityper, Redactron, Compugraphic, CPT, Wang, VYDEC

4. Intelligent Terminals
   Incoterm, Northern Telecom, Ontel, Hazeltine, Beehive, ADDS, Ramtek, Chromatics

5. Mini and Micro Computers

   a. Minicomputers - DEC, Data General, Perkin Elmer, General Automation, Prime, Microdata, Computer Automation

   b. Microprocessor Development Systems - Intel, Zilog, Mostek, Tektronix, National Semiconductor, Motorola

   c. Add-on Memory Subsystems - Data Systems Design, Digital Micro Systems, Scientific Micro Systems, Charles River Data, System Industries, Plessey

MARKETING OBJECTIVES

Marketing Objectives

Quantum Marketing's long term objectives will be to:

1. Secure 14 percent to 20 percent marketshare of the low cost 8-inch fixed disk drive marketplace

2. Build a highly effective field sales team

3. Build Quantum sales to over $40 million annually in 1983 and over $70 million in 1984

4. Build a strong customer and technical support team to support projected sales

5. Build a product marketing organization to plan, support, and guide Quantum product growth beyond the initial product offerings

6. Maintain average unit prices (AUP) consistent with long term Quantum profit objectives.

ENGINEERING-PRODUCT DEVELOPMENT PLAN

SINGLE FOCUS FOR ALL KEY ENGINEERING

Quantum Engineering will be responsible for development, manufacturing engineering, and test engineering for all products. The experience of Quantum's founders has taught them the critical value of unifying product design and manufacturing technical activities. Quantum Engineering's primary objective will be to assure that all technical activities are focused on the marketplace success of Quantum's products.

Product development activity is underway at Quantum, and represents a significant portion of the total company activity in 1980. As the initial product design is completed, manufacturing tooling, processes and equipment, along with test methods and equipment, will be developed. The 1980 product development schedule and manpower requirements are described in Figure 18 (page 47).

PROTOTYPE DESIGN JUNE 1980, FIRST PROTOTYPES IN SEPTEMBER 1980, PRODUCTION STARTING 1981

Prototype design of the first Quantum product family will be completed in June 1980. Additional key people will then be added to the technical staff to optimize the basic design, complete detailed component design, product testing, and start manufacturing process development.

Engineering will build initial prototype drives, support development of key component vendors; and, during fourth quarter 1980 and first quarter 1981, aid Manufacturing in the building of pilot production units. After the product is fully released to manufacturing and production begins in January 1981, the Engineering focus will shift heavily to support of manufacturing start-up.

5-1/4-INCH FIXED DISK DRIVE DESIGNED IN 1982

By 1982, the manufacturing process will be stabilized, sustaining manufacturing engineering will be in place, and Engineering will turn to development of Quantum's second product family (5-1/4-inch fixed disk drives).

PRODUCT INNOVATION IN INTEGRATION OF MATURE TECHNOLOGIES

Quantum Engineering's fundamental approach will be to innovatively apply and integrate proven, mature design and manufacturing technologies rather than to pioneer the frontiers of formulative, exotic technologies. Key will be the creation of reliable, low cost, manufacturable products in response to clear market needs. Strong technical partnerships will be formed with major parts suppliers to assure Quantum's use of the most cost-effective sources of various drive components and sub-assemblies.

ENGINEERING ORGANIZATION

The Engineering organization will consist of four major functions:

- Development engineering
- Recording engineering
- Manufacturing engineering
- Test engineering

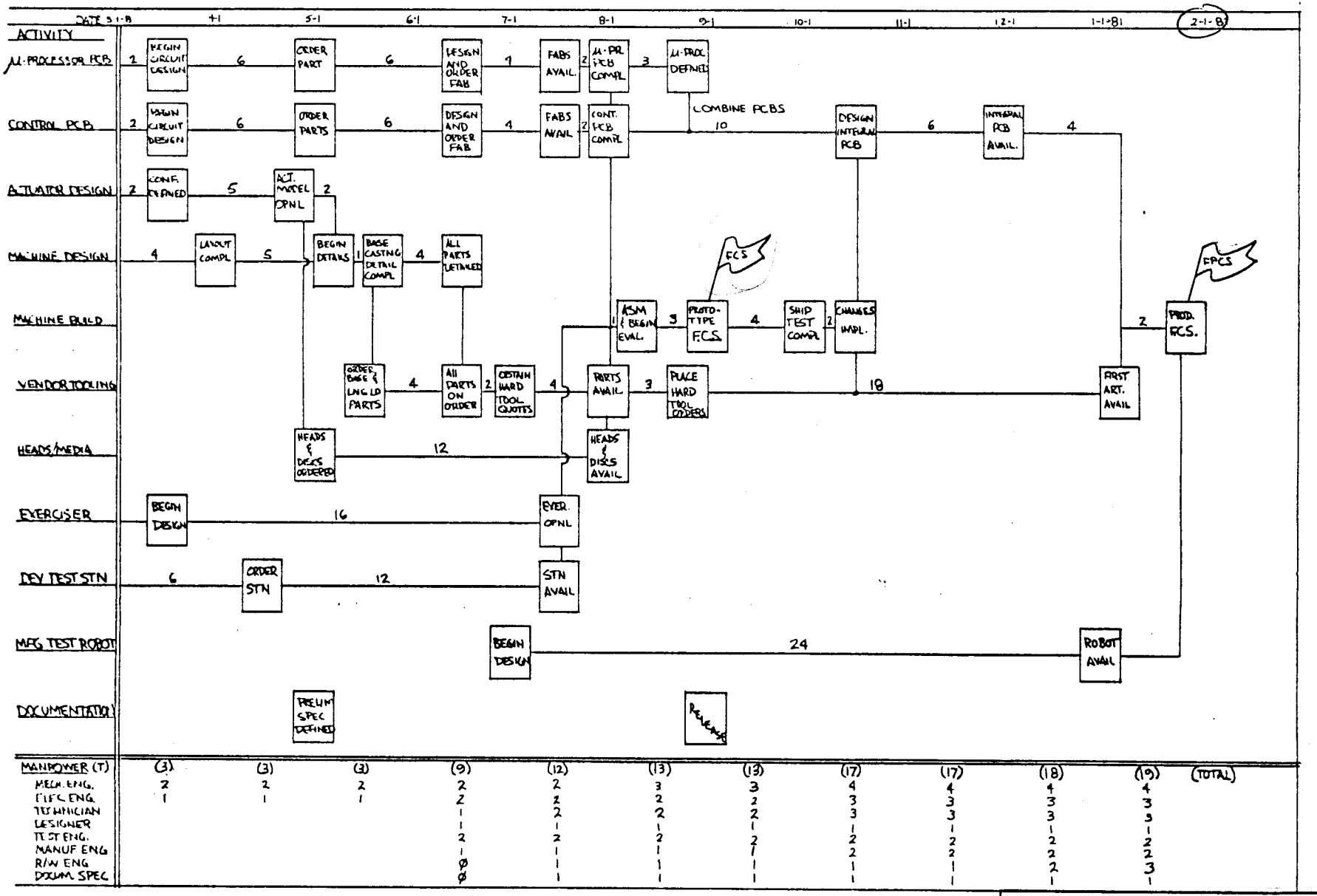


FIGURE 18

DEVELOPMENT PLAN

DRAWN BY: DKB

DATE: 2-23-82

REVISED: 3/27/82

QUANTUM CORP.

Q10 & Q20 PRODUCTS

ENGINEERING OBJECTIVES

Engineering objectives are:

1. Design a drive family with 10, 20 and 30 megabyte capacities

   a. Assembly labor content of 1.5 hours or less and test labor of .6 hours or less (10 MB)

   b. Manufacturing cost of $300 or less for the 10MB drive (material, labor, and overhead - 1980 dollars) at ultimate (20,000th unit)

2. Build 20 prototypes in September and October 1980

3. Support manufacturing in hard tooled pilot production beginning in January 1981

4. Build a strong technical team to develop and support both Quantum products and manufacturing processes as a single focused effort

5. Support manufacturing launch of Quantum products into high volume production

6. Be a market and operations responsive organization

7. Be known as the most respected rotating memory engineering team in the industry

MANUFACTURING PLAN

COST CONTROL OBJECTIVES

In order to compete with the high volume production economies of the competition, Quantum will focus on low cost design procurement, assembly and test.

MANUFACTURING ORGANIZATION

The start-up organization in manufacturing will consist of the key functions of manufacturing management and materials control management. With growth of the company the organization will be staffed with purchasing, quality control and facilities functions as shown in the organization chart. Figure 14 (page 32).

TEAM TO DESIGN FOR LOW COST

Quantum products are designed by an engineering-manufacturing team for low cost high volume production. During design the lowest cost manufacturing process will be selected which will meet the functional requirements of the part. Parts will also have locating features and tooling points designed in to facilitate automatic parts feeding, indexing, locating, checking and assembly. Sub assemblies and final assemblies will have features for ease of automatic testing and inspection. Direct assembly labor will be a small part of total product cost. The difficulties of building and training the direct labor force will, therefore, be minimized.

MATERIALS OPERATIONS COMPUTER CONTROLLED

Manufacturing is planned to be primarily an assembly operation. Parts are purchased to specifications, inspected, tested and assembled into a product. This places a heavy burden on the materials procurement function, and, the management of this function becomes critical to the success of the company. To assure efficient operation of the material control group a computerized Manufacturing Information System will be implemented with the release of the product design to manufacturing. The MIS groundwork will begin during the product design with engineering structuring the bills of material for entry into a Materials Requirement Planning module. The system will be expanded as production increases to include all functions of materials requirement planning as well as cost accounting. The objective is to grow with the system in place thus avoiding the trauma of implementing an MRP system in a high production environment. The controls inherent in the Manufacturing Information System will minimize inventory control (provide a minimum of four turns),assembly labor content,

minimize indirect material handling labor, and provide on time deliveries. This computer system also becomes a tremendous diagnostic tool to aid in maintaining profitability.

PURCHASING AT COMPETITIVE PRICES

Cost of purchased materials is sensitive to order quantity. Therefore, high volume manufacturers have an advantage in procurement since they may negotiate favorable prices for large orders. The advantage diminishes as quantity increases since pricing is classically a logarithmic function. Typically, once order quantities reach approximately 20,000 units, the price advantage of increased order quantities is only a few percentage points. Quantum will be in the position of commiting large quantity orders in 1982 and with cost effective management of inventory will be competitive with high volume competitors in the cost of purchased materials.

BEST EFFECTIVE PRODUCTION

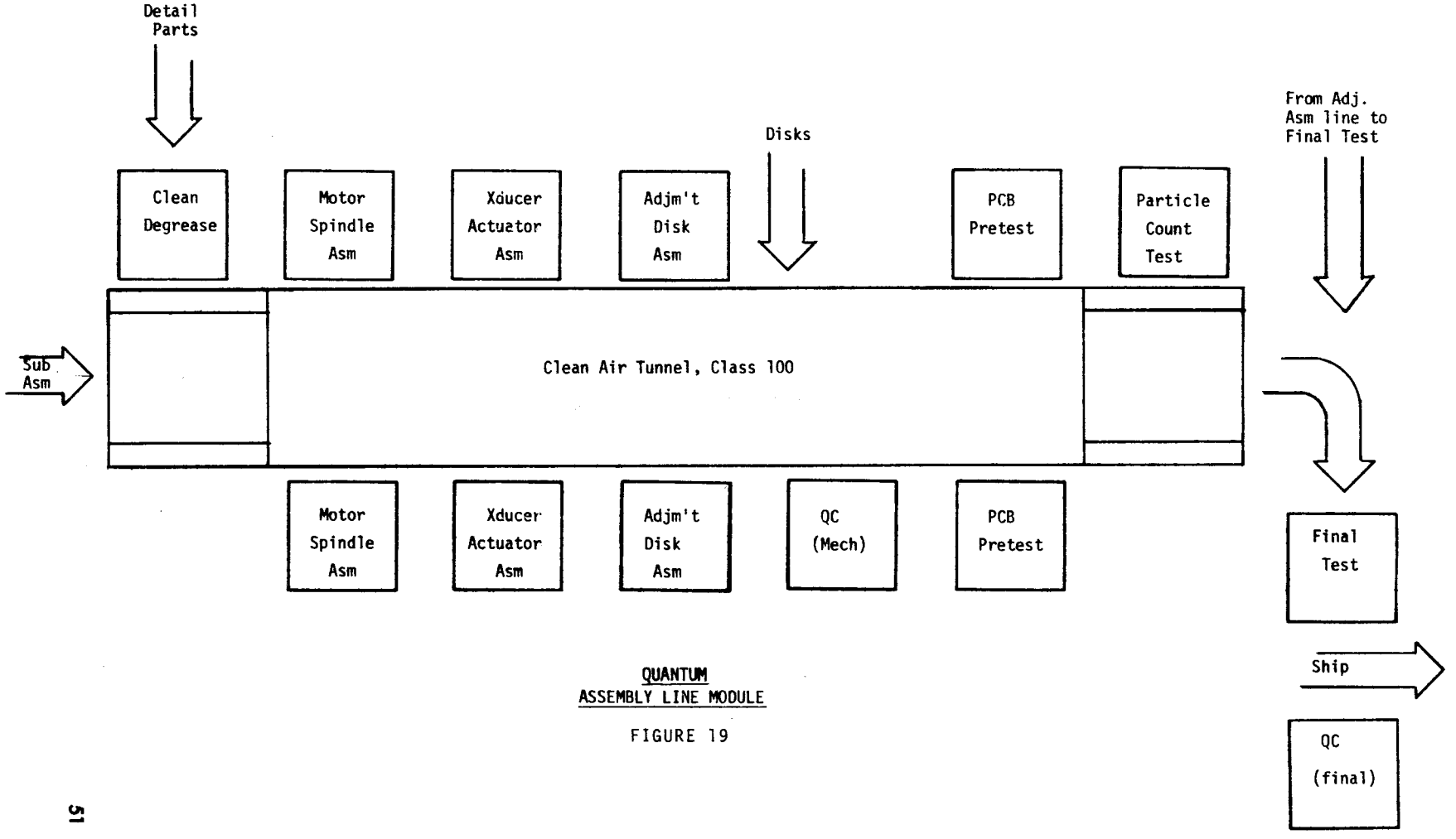
Manufacturing will be organized and tooled for lowest possible cost assembly operations. Sub assemblies will be built on dedicated tools incorporating test functions to assure that all units moving to final assembly lines are at acceptable quality levels. Sub assembly lines will be balanced to the output of final assembly to minimize in-process inventory. Final assembly operations will be tooled with assembly fixtures, parts feeding devices, and other assembly aids. A pretest function will minimize reject and rework returns from the final test function. The final test system will have multiplexing capabilities and will handle the output from several final assembly lines.

MODULAR ASSEMBLY LINES PROVIDE CAPACITY EXPANSION

The manufacturing plant layout will be optimized for efficient materials handling. Gravity flow racks and conveyor systems will be used to kit parts for production. Sub assembly and final assembly areas will be located for minimum materials movement between operations assembly lines. The line module will contain its own clean air system to provide a contamination free environment for assembly. Each line will have a production capacity of 40 units per day shift. Final test operations will handle the output from several assembly lines. As production demands increase assembly lines modules will be added to increment capacity. Materials flow through production and work in process will be monitored and controlled by the Manufacturing Information System. Figure 19 (page 51) is a block diagram of an assembly line module showing the various assembly and quality control operations as well as materials flow.

COMPUTER AIDED QUALITY CONTROL UTILIZED

Although heavy emphasis is placed on low cost, product quality will not be sacrificed. Quantum's quality control function will assure that products meet engineering specifications. The various test functions in the assembly operations will be supplemented with quality control gates. Statistical quality control concepts will be utilized to minimize inspection costs. The Manufacturing Information System will monitor component and assembly rejects to optimize control of the quality operation.



QUANTUM
ASSEMBLY LINE MODULE

FIGURE 19

VENDOR SOURCE QUALITY

Quality of purchased parts and components have major ramifications in the manufacturing operations. In the constant conflict of cost versus quality, there will be no compromise of specifications. Vendor sources will be qualified based upon their parts quality history as well as their capability to produce quantity parts at low cost.

FACILITIES PLAN

The facilities function is responsible for planning and acquiring the plant and facilities required for the orderly growth of the company. Since our operations fit the class of light manufacturing, no special building facilities or leasehold improvements are needed. Clean environments necessary for final assembly operations will be provided in the assembly line modules. Requirements of 6000 square feet will be developed in mid-1980 in Santa Clara County. This facility will meet the growth needs through mid-year 1981. Future expansion may be developed outside the Santa Clara Valley dependent upon availability of labor and other factors which impact industry growth in this area. The facilities space plan is shown in Figure 20 (page 53).

MANUFACTURING GOALS AND OBJECTIVES

MANUFACTURING OBJECTIVES

1. Provide the facilities and plant required for the company operations, and plan for orderly growth to assure no impact on product delivery commitments.

2. Support Engineering in the prototype build of 20 machines.

3. Begin pilot production year end 1980.

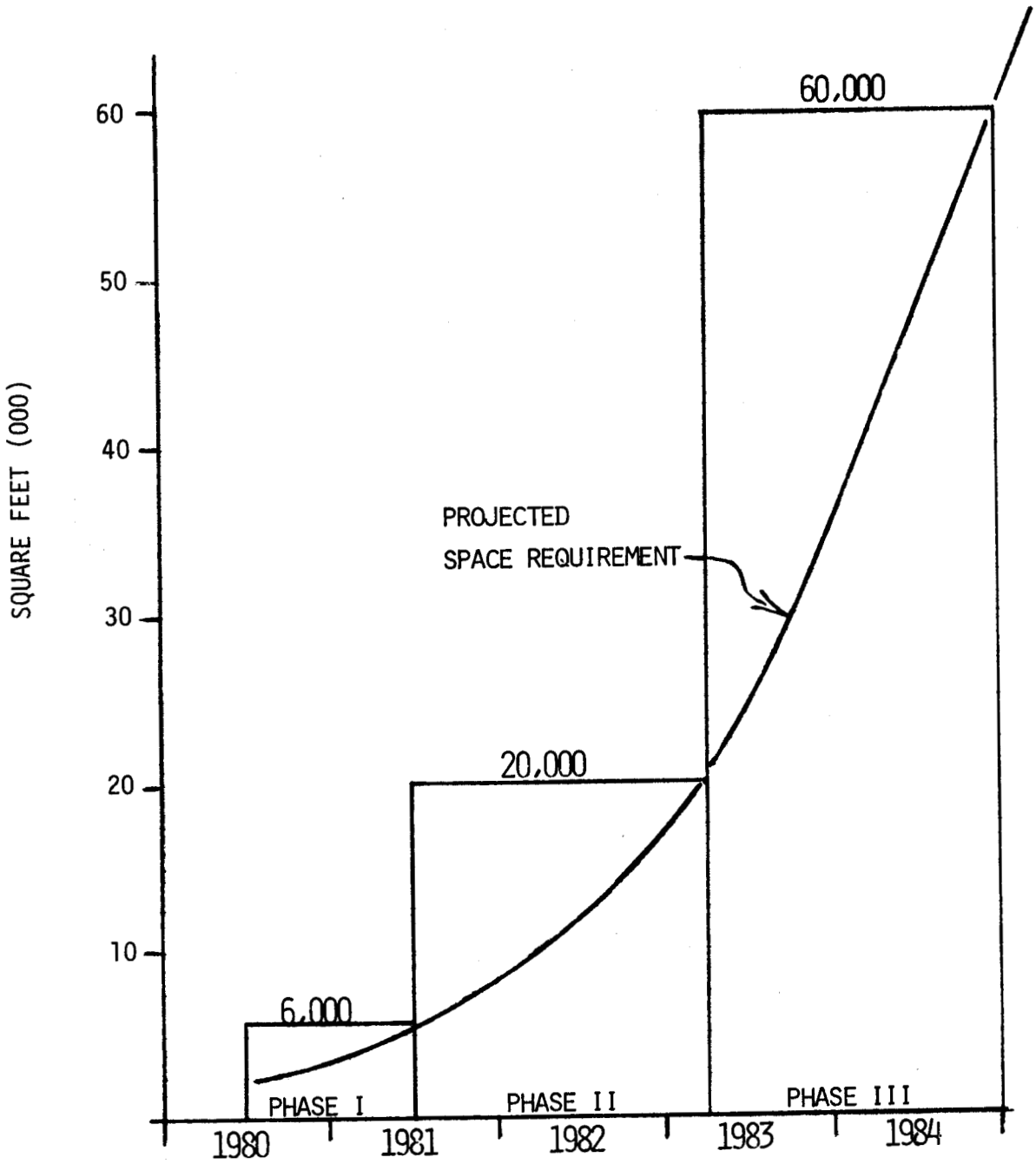
4. Develop and maintain a master scheduling system to meet order and forecast sales requirements.

5. Implement a Manufacturing Information System with a Materials Requirement Planning module driven from the master schedule.

6. Develop the manufacturing capacity to meet the master build schedule.

7. Meet the ultimate product cost objective by the 20,000th production unit.

8. Maintain inventory at 4-1/2 annual turns.



QUANTUM FACILITIES SPACE PLAN

FIGURE 20

FINANCIAL PLAN

Goals and Assumptions

Quantum Corporation's plans call for rapidly building a strong manufacturing company in the highly competitive low cost OEM peripheral marketplace. Success depends on early introduction of the product to the marketplace, and obtaining commitments from a few big OEM accounts. The company's financial strengths are key to both of these elements. The financial resource must be available to attract the people necessary to complete the product development and introduce the product to production. The manufacturing introduction must include the design and procurement of tools and test equipment which make large volume, low cost manufacturing possible. This financial strength and capability, together with Quantum's product advantages will attract the major OEM customers.

Quantum's financial plan is based on achieving the following goals:

FINANCIAL GOALS

Inventory Turns	> 4 per year	- 1Q 1981
Accounts Receivable	< 60 days	- 1Q 1981
Accounts Payable	< 30 days	- 1Q 1981
Profitable Operation Yearend		- 1981
Cost of Goods Sold	< 60% of revenue	1983
Period Expenses	< 20% of revenue	1983
Pretax Profit	> 20% of revenue	1983

These goals are very conservative. The company's operating goals will include inventory turns of 4.5 and accounts receivable of 45 days by yearend 1981.

ECONOMIC ASSUMPTIONS

The plan is also based on the following major assumptions regarding the economic climate:

Inflation will average 10% per year over the next 5 years.
Interest of debt funds will average 15% per year.
Interest received on funds will average 10% per year.

Figures 21 through 28 (pages 56 through 63) describe Quantum's financial plans in detail. Figure 21 is the Quantum revenue plan which describes the product sales in both units and unit price. Figures 22, 23, 24 " Pro Forma Statements of Operation", show the company plan to achieve profitable operation by yearend 1981, and 20% pretax profit in 1983. The cash resources required to implement the Quantum plan are shown in Figures 25 and 26 The company will require $5 million to reach profitable operations. Figures 27 and 28 are the company's balance sheets which show the growth of the company's financial strength and value to its stockholders.

RESOURCE REQUIREMENTS

In order to achieve these plans the company is seeking an equity investment of $5 million. These funds will be used by the company through yearend 1981 when profitable operation will be achieved. Additional debt financing will be required in 1982, 1983, and 1984.

Figures 29 and 30 (pages 64, 65) describe the sources and uses of the company's cash resources at three major milestones in 1981.

SENSITIVITY ANALYSIS

The financial plan was tested by examining the sensitivity of the company's resource requirements for three negative variations from the base plan. In the first case the sensitivity of the plan to a slippage in the product development schedule was examined. The schedule slippage in Case One is three months from the base plan. It is assumed that the cause of the schedule slippage is a technical problem and that the Engineering expenses must be increased in response. Also the expense for capital tooling is shown increased significantly to permit rework of the tooling. A schedule slippage as described would delay the achievement of profitable operations until the second quarter of 1982 and would increase the company's cash requirements by $600 thousand.

In the second case the sensitivity of the company's financial plan to a decline in sales of 30 percent was examined. The decline in sales could occur if a downturn in the economy beginning in late 1980 became deeper or more protracted than now projected. For this case it was conservatively assumed that company's expenses would continue along the base plan levels until yearend 1981. In the first quarter 1982 expenses and inventory are assumed reduced to reflect the sales decline. With these assumptions the company would require $1.8 million additional cash over the base plan and profitable operation would be delayed until the second quarter 1982.

The third case of the sensitivity analysis assumed the inventory turns to be 3.5 instead of 4 in the base plan and the receivables to be 90 days instead of 60 days. This case would result in an additional need of $800 thousand to the point of profitable operations, yearend 1981. The sources and uses of cash for all of these cases are compared in Figure 31 (page 66).

QUANTUM CORPORATION
PRO FORMA
REVENUE PLAN

	1981 1Q	1981 2Q	1981 3Q	1981 4Q	1981 TOTAL	1982 1Q	1982 2Q	1982 3Q	1982 4Q	1982 TOTAL	1983	1984
UNIT SHIPMENTS												
Model 1 (10 MB) 8" Products	10	40	150	400	600	500	750	900	1300	3450	7000	14000
Model 2 (20 MB)	25	100	400	800	1325	1100	1400	1700	2500	6700	17000	33000
Model 3 (30 MB)	65	160	250	500	975	700	1000	1200	1800	4700	13000	25000
Model 4 (5 MB) 5¼" Products	--	--	--	--	--	--	--	--	--	--	750	2000
Model 5 (10 MB)	--	--	--	--	--	--	--	--	--	--	1500	4000
Model 6 (15 MB)	--	--	--	--	--	--	--	--	--	--	1000	3000
Controller 1	35	150	220	230	635	240	250	260	300	1050	1700	2325
Controller 2	--	--	--	--	--	--	--	--	--	--	700	2025
Avg. Unit Price ($)												
Model 1 (10 MB)	940	920	890	860	--	830	800	770	750	--	740	720
Model 2 (20 MB)	1230	1180	1130	1090	--	1040	990	960	930	--	900	870
Model 3 (30 MB)	1440	1380	1330	1280	--	1240	1190	1140	1100	--	1040	990
Model 4 (5 MB)	--	--	--	--	--	--	--	--	--	--	620	600
Model 5 (10 MB)	--	--	--	--	--	--	--	--	--	--	750	720
Model 6 (15 MB)	--	--	--	--	--	--	--	--	--	--	870	840
Controller 1	570	545	525	510	--	500	490	480	470	--	470	450
Controller 2	--	--	--	--	--	--	--	--	--	--	330	320
Revenue ($000)												
Model 1 (10 MB)	9	37	134	344	524	415	600	693	975	2683	5180	10080
Model 2 (20 MB)	31	118	452	872	1473	1144	1386	1632	2325	6487	15300	28710
Model 3 (30 MB)	94	208	333	640	1275	868	1190	1368	1980	5406	13520	24750
Model 4 (5 MB)	--	--	--	--	--	--	--	--	--	--	465	1200
Model 5 (10 MB)	--	--	--	--	--	--	--	--	--	--	1125	2880
Model 6 (15 MB)	--	--	--	--	--	--	--	--	--	--	870	2520
Controller 1	20	82	116	117	335	120	123	125	141	508	799	1046
Controller 2	--	--	--	--	--	--	--	--	--	--	231	648
TOTAL	154	457	1034	1973	3618	2547	3299	3818	5421	15084	36620	69314

FIGURE 21

QUANTUM CORPORATION
PRO FORMA
STATEMENT OF OPERATION
(dollars in thousands)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total (1980)
Revenue	--	--	--	--	--	--	--	--	--	--	--	--	--
Interest Income	--	--	--	--	--	41.0	40.0	39.0	37.0	34.0	33.0	31.0	255.0
Total Income	--	--	--	--	--	41.0	40.0	39.0	37.0	34.0	33.0	31.0	255.0
Direct Cost	--	--	--	--	--	--	--	--	--	--	--	--	--
Manufacturing Expense	--	--	0.6	0.6	0.6	11.5	14.7	18.9	18.1	22.9	23.1	22.7	133.7
Cost of Goods	--	--	0.6	0.6	0.6	11.5	14.7	18.9	18.1	22.9	23.1	22.7	133.7
Gross Profit	--	--	(0.6)	(0.6)	(0.6)	29.5	25.3	20.1	18.9	11.1	9.9	8.3	121.3
Expense													
Marketing	--	--	--	0.6	2.7	11.2	15.6	24.5	23.1	18.1	25.8	20.8	142.4
Finance and Administration	--	2.1	2.2	1.9	3.4	18.4	16.5	13.1	16.5	17.8	20.9	25.7	138.4
Engineering	--	--	0.6	2.6	1.4	36.7	66.5	85.1	108.7	97.5	83.5	85.2	567.7
Interest	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Expense	--	2.1	2.8	5.1	7.5	73.0	122.5	136.1	162.4	119.2	129.9	123.2	883.8
Profit Before Taxes	--	(2.1)	(3.4)	(5.7)	(8.1)	(43.5)	(97.2)	(116.0)	(143.5)	(108.1)	(120.0)	(114.9)	(762.5)
Income Taxes	--	--	--	--	--	--	--	--	--	--	--	0.2	0.2
Net Income	--	(2.1)	(3.4)	(5.7)	(8.1)	(43.5)	(97.2)	(116.0)	(143.5)	(108.1)	(120.0)	(115.1)	(762.7)

FIGURE 22

QUANTUM CORPORATION
PRO FORMA
STATEMENT OF OPERATIONS
(dollars in thousands)

	1Q 1981	2Q 1981	3Q 1981	4Q 1981	TOTAL 1981	1Q 1982	2Q 1982	3Q 1982	4Q 1982	TOTAL 1982	1983	1984
Revenue	154	457	1034	1973	3618	2547	3299	3818	5421	15084	36620	69314
Interest Income	77	56	28	6	167	--	--	--	--	--	--	--
Total Income	231	513	1062	1979	3785	2547	3299	3818	5421	15085	36620	69314
Direct Cost	145	341	643	1085	2214	1249	1534	1729	2405	6917	16300	30792
Manufacturing Expense	110	140	185	200	635	350	430	500	680	1960	4400	8300
Cost of Goods	255	481	828	1285	2849	1599	1964	2229	3085	8877	20700	39092
Gross Profit	(24)	32	234	694	936	948	1335	1589	2336	6208	15920	30222
Expense												
Marketing	75	105	165	205	550	250	310	340	470	1370	2900	5000
Administration & Finance	85	100	120	130	435	160	215	250	325	950	2000	3800
Engineering	275	285	300	315	1175	325	340	360	435	1460	2750	5200
Interest	--	--	--	--	--	10	26	30	54	120	557	896
Total Expense	435	490	585	650	2160	745	891	980	1284	3900	8207	14896
Profit Before Taxes	(459)	(458)	(351)	44	(1224)	203	444	609	1052	2307	7713	15326
Income Taxes	--	--	--	--	--	--	--	--	78	78	3856	7663
Net Income	(459)	(458)	(351)	44	(1224)	203	444	609	974	2229	3857	7663

FIGURE 23

QUANTUM CORPORATION
PRO FORMA
STATEMENT OF OPERATIONS
(Percent of Income)

	1Q 1981	2Q 1981	3Q 1981	4Q 1981	TOTAL 1981	1Q 1982	2Q 1982	3Q 1982	4Q 1982	TOTAL 1982	1983	1984
Total Income	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Direct Cost	62	66	60	55	58	49	46	45	44	46	45	44
Manufacturing Expense	48	27	17	10	17	14	13	13	13	13	12	12
Cost of Goods	110	93	77	65	75	63	59	58	57	59	57	56
Gross Profit	(10)	6	22	35	24	37	40	41	43	41	43	43
Expense												
Marketing	32	20	16	10	15	10	9	9	8	9	8	7
Administration & Finance	36	19	11	7	11	6	7	6.2	6	6	5	5
Engineering	119	56	28	16	31	13	10.2	9	8	9.2	7	8
Interest	--	--	--	--	--	0.4	0.8	0.8	1	0.8	2	2
Total Expenses	188	95	55	33	57	29	27	25	23	25	22	21
Profit Before Taxes	(198)	(89)	(33)	2	(32)	8	13	16	19	15.5	21	22
Taxes	--	--	--	--	--	--	--	--	1	.5	10	11
Net Income	(198)	(89)	(33)	2	(32)	8	13	16	20	16	11	11

FIGURE 24

QUANTUM CORPORATION
PRO FORMA
CASH FLOW
(dollars in thousands)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	1980
Receivable Collections	--	--	--	--	--	--	--	--	--	--	--	--	--
Interest Income	--	--	--	--	--	41.0	40.0	39.0	37.0	34.0	33.0	31.0	255.0
Debt Increase	--	--	--	--	--	--	--	--	--	--	--	--	--
Total Cash In	--	--	--	--	--	50.0	40.0	39.0	37.0	34.0	33.0	31.0	255.0
Purchase to Inventory	--	--	--	--	--	--	--	--	--	--	48.0	48.0	96.0
Expenses	--	2.1	3.4	5.7	8.0	77.5	111.1	137.6	157.8	147.1	143.4	144.0	937.7
Taxes	--	--	--	--	--	--	--	--	--	--	--	.2	.2
Leasehold Improvements	--	--	--	--	--	--	5.0	15.0	--	--	--	--	20.0
Vendor Tools	--	--	--	--	--	5.0	5.0	3.0	150.0	--	--	--	163.0
Furniture/Fixtures	--	--	--	--	--	2.0	21.0	15.0	5.0	7.0	10.0	10.0	70.0
Test Equipment	--	--	--	--	--	7.0	15.0	35.0	27.0	5.0	28.0	17.0	134.0
Total Capital	--	--	--	--	--	14.0	46.0	68.0	182.0	12.0	38.0	27.0	387.0
Total Cash Out	--	2.1	3.4	5.7	8.0	91.5	157.1	205.6	339.8	159.1	181.4	171.0	1324.7
Net Cash Out	--	2.1	3.4	5.7	8.0	50.5	117.1	166.6	302.8	125.1	196.4	188.2	1165.9
Cumulative Cash Out	--	2.1	5.5	11.2	19.2	69.7	186.8	353.4	656.2	781.3	977.7	1165.9	

FIGURE 25

QUANTUM CORPORATION
PRO FORMA
CASH FLOW
(dollars in thousands)

	1Q 1981	2Q 1981	3Q 1981	4Q 1981	TOTAL 1981	1Q 1982	2Q 1982	3Q 1982	4Q 1982	TOTAL 1982	1983	1984
Receivable Collections	$ 51	$ 255	$ 649	$ 1347	$ 2302	$ 2164	$ 2798	$ 3472	$ 4352	$12786	$29288	$ 64069
Interest Income	77	56	28	6	167	--	--	--	--	--	--	--
Debt Increase	--	--	--	--	--	271	345	117	706	1439	2035	5406
Total Cash In	128	311	677	1353	2469	2435	3143	3589	5058	14225	31323	69475
Purchases to Inventory	276	562	903	1294	2735	1447	1774	2180	3008	8443	17447	37347
Expenses	494	575	703	770	2542	1010	1229	1377	1850	5466	11343	20987
Taxes	--	--	--	--	--						283	6941
Leasehold Improvements	10	--	--	100	110							
Vendor Tools	20	30	70	40	160	120	140	180	200	640	2100	4200
Furniture/Fixtures	15	15	45	50	125							
Test Equipment	30	10	32	20	92							
Total Capital	75	55	147	210	487	120	140	180	200	640	2100	4200
Total Cash Out	845	1172	1753	2274	5764	2577	3143	2032	5058	12810	31173	69475
Net Cash Out	717	881	1076	921	3295	142	--	--	--	142	(150)	--
Cumulative Cash Out	1918	2799	3875	4796	--	4938	4938	4938	4938	--	4788	4788

FIGURE 26

QUANTUM CORPORATION
PRO FORMA
BALANCE SHEET
(dollars in thousands)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cash	--	35.9	32.5	26.8	18.8	4961.8	4820.8	4640.8	4323.9	4213.0	4064.9	3933.4
Accounts Receivable	--	--	--	--	--	--	--	--	--	--	--	--
Inventory	--	--	--	--	--	--	--	--	--	48.0	48.0	49.0
Other	--	--	--	--	--	--	--	--	--	--	--	--
Current Assets	--	35.9	32.5	26.8	18.8	4961.8	4820.8	4640.8	4323.9	4261.0	4112.9	3982.4
Fixed Assets	--	--	--	--	5.0	20.0	80.0	148.0	315.0	345.0	380.0	407.0
Accumulative Depreciation	--	--	--	--	(.1)	(.6)	(2.8)	(6.8)	(15.4)	(24.6)	(34.5)	(44.9)
Net Fixed Assets	--	--	--	--	4.9	19.4	77.2	141.2	299.6	320.4	345.5	362.1
Total Assets	--	35.9	32.5	26.8	23.7	4981.2	4898.0	4782.0	4623.5	4581.4	4458.4	4344.5
Accounts Payable	--	--	--	--	5.0	6.0	20.0	20.0	5.0	71.0	68.0	69.0
Debt	--	--	--	--	--	--	--	--	--	--	--	--
Taxes Payable	--	--	--	--	--	--	--	--	--	--	--	--
Other	--	--	--	--	--	--	--	--	--	--	--	--
Current Liabilities	--	--	--	--	5.0	6.0	20.0	20.0	5.0	71.0	68.0	69.0
Long Term Debt	--	--	--	--	--	--	--	--	--	--	--	--
Total Liabilities	--	--	--	--	5.0	6.0	20.0	20.0	5.0	71.0	68.0	69.0
Common Stock	--	38.0	38.0	38.0	38.0	5038.0	5038.0	5038.0	5038.0	5038.0	5038.0	5038.0
Retained Earnings	--	(2.1)	(5.5)	(11.2)	(19.3)	(62.8)	(160.0)	(276.0)	(419.5)	(527.6)	(647.6)	(762.5)
Equity	--	35.9	32.5	26.8	18.7	4975.2	4878.0	4762.0	4618.5	4510.4	4390.4	4275.5
Total Liabilities and Shareholders' Equity	--	35.9	32.5	26.8	23.7	4981.2	4898.0	4782.0	4623.5	4581.4	4458.4	4344.5

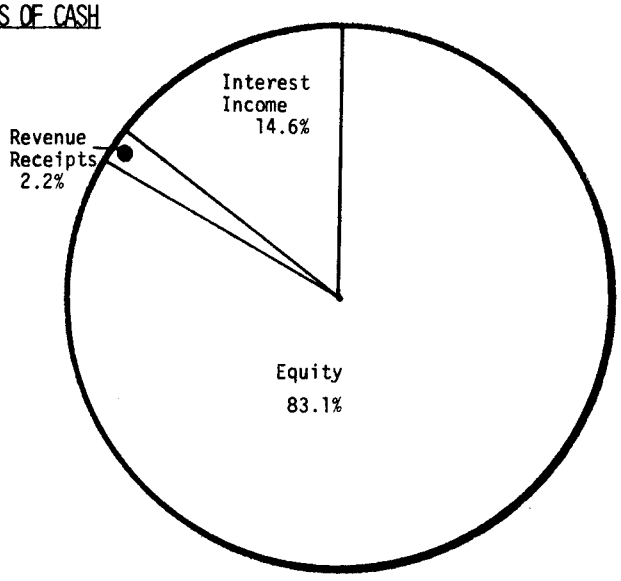
FIGURE 27

QUANTUM CORPORATION
PRO FORMA
BALANCE SHEET
(dollars in thousands)

	1Q 1981	2Q 1981	3Q 1981	4Q 1981	1Q 1982	2Q 1982	3Q 1982	4Q 1982	1983	1984
Cash	3120	2239	1163	242	100	100	100	100	250	250
Accounts Receivable	103	305	690	1316	1699	2200	2546	3615	10947	16192
Inventory	295	560	860	1165	1390	1630	2070	2830	4290	8670
Other	20	20	20	20	50	50	50	50	150	150
Current Assets	3538	3124	2733	2743	3239	3980	4766	6595	15637	25262
Fixed Assets	502	587	754	934	1059	1214	1404	1604	4334	8534
Accumulated Depreciation	(96)	(151)	(218)	(298)	(383)	(475)	(578)	(692)	(1906)	(4115)
Net Fixed Assets	406	436	536	636	676	739	826	912	2428	4419
Total Assets	3944	3560	3269	3379	3915	4719	5592	7507	18065	29681
Accounts Payable	108	182	242	308	340	363	502	878	1344	3737
Debt	--	--	--	--	271	616	733	1439	3125	2465
Taxes Payable	--	--	--	--	--	--	--	78	3794	4578
Other	20	20	20	20	50	50	50	50	150	150
Current Liabilities	128	202	262	328	661	1029	1285	2312	8413	10930
Long Term Debt	--	--	--	--	--	--	--	--	600	2000
Total Liabilities	128	202	262	328	661	1029	1285	2312	9013	12930
Common Stock	5038	5038	5038	5038	5038	5038	5038	5038	5038	5038
Retained Earnings	(1222)	(1680)	(2031)	(1987)	(1784)	(1340)	(731)	157	4014	11677
Equity	3816	3358	3007	3051	3254	3690	4307	5195	9052	16715
Liabilities and Shareholders' Equity	3944	3560	3269	3379	3915	4719	5592	7507	18065	29681
Working Capital	3410	2922	2471	2415	2578	2951	3481	4283	7224	14332
Current Ratio	27.6	15.5	10.4	8.4	4.9	3.9	3.7	2.8	1.9	2.3
Net Worth	3816	3358	3007	305	3254	3690	4307	5195	9052	16715
Debt/Equity	--	--	--	0.1	0.2	0.3	0.3	0.4	1.0	.8

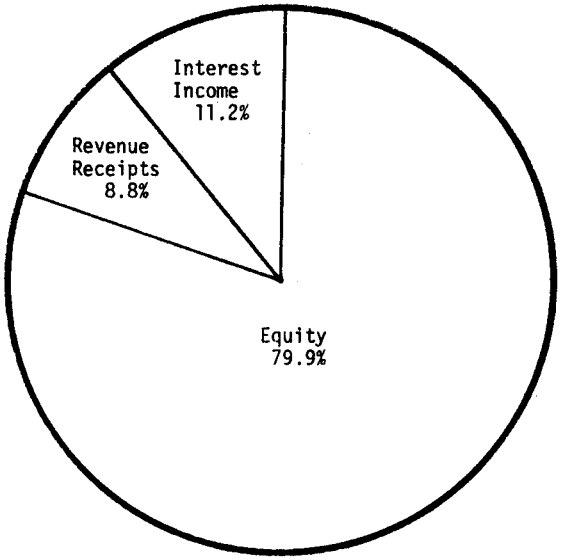
FIGURE 28

SOURCES OF CASH



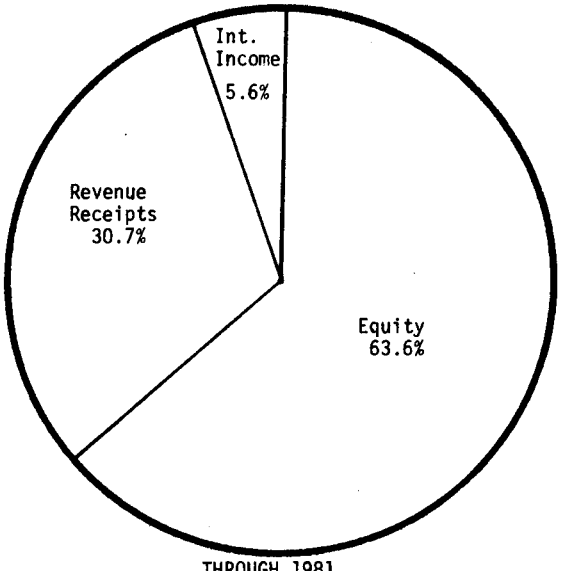
$2,267,000

THROUGH FIRST QUARTER 1981



$3,458,000

THROUGH FIRST HALF 1981

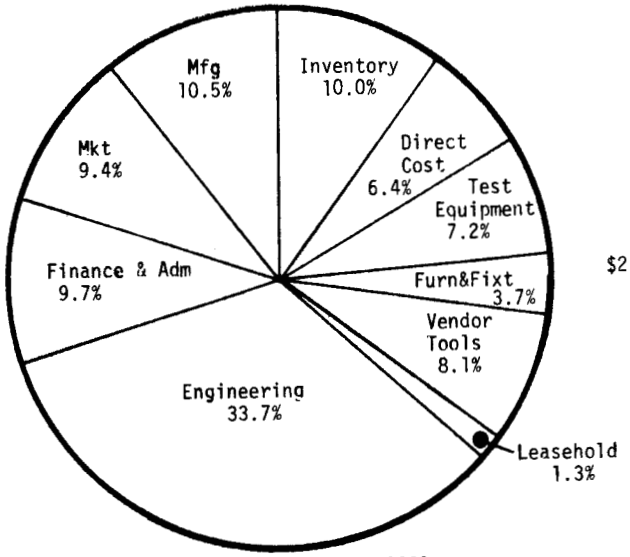


$7,485,000

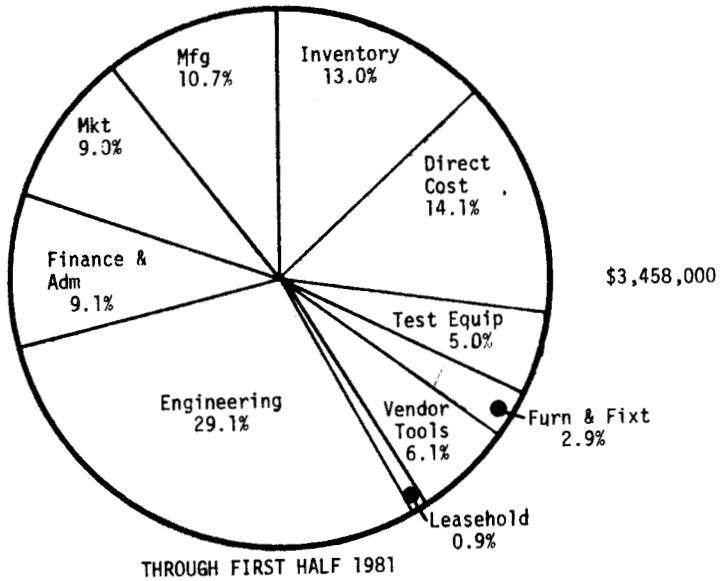
THROUGH 1981

FIGURE 29

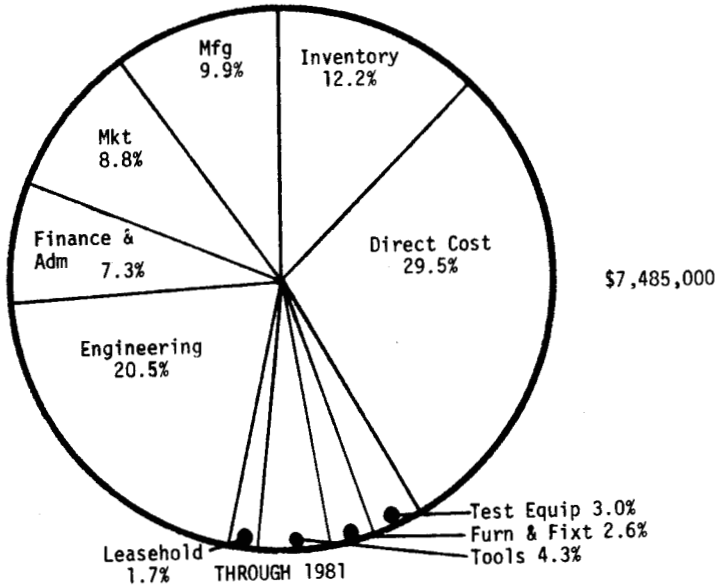
USE OF CASH



THROUGH FIRST QUARTER 1981



THROUGH FIRST HALF 1981



THROUGH 1981

FIGURE 30

SENSITIVITY ANALYSIS

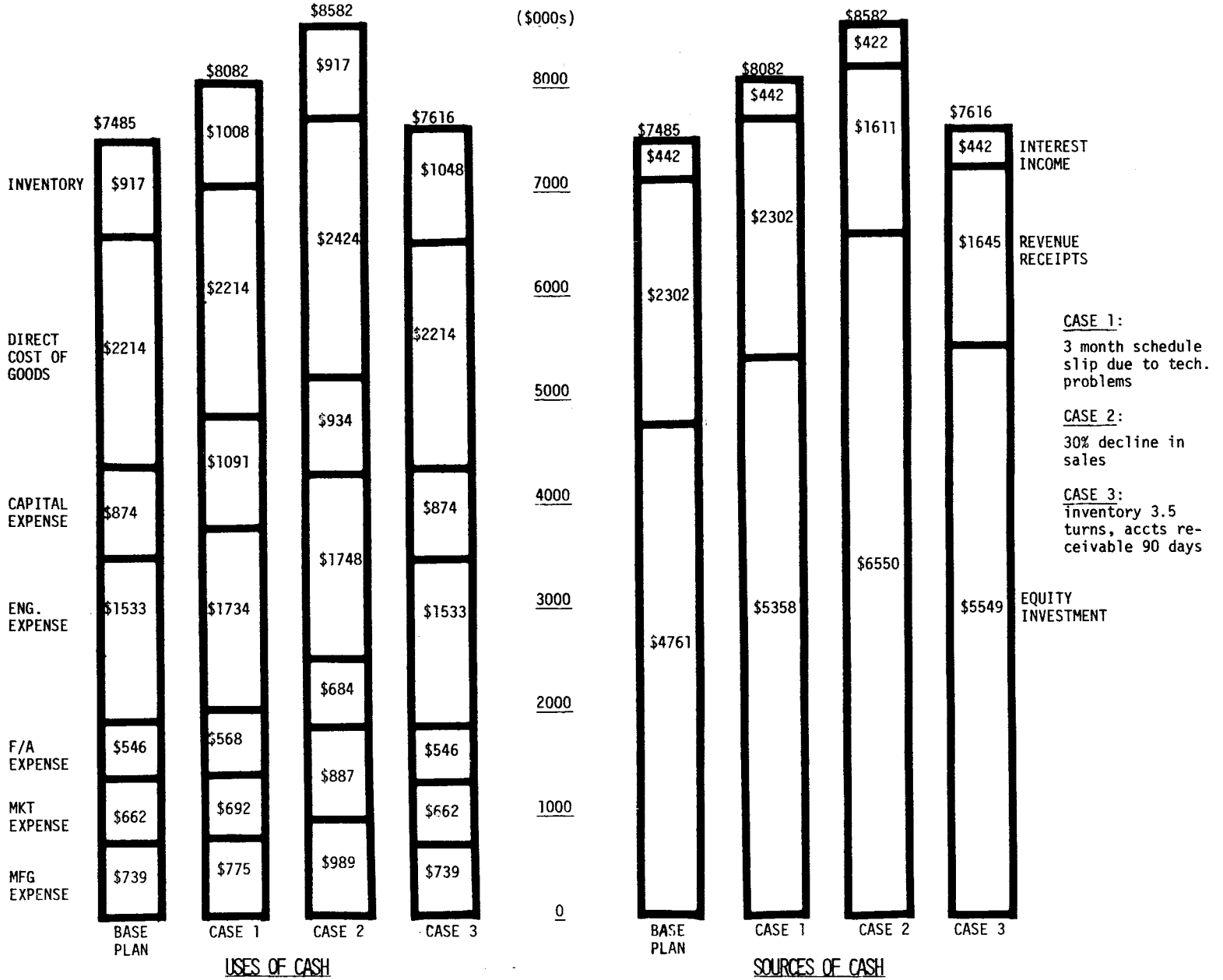


FIGURE 31

RISKS AND EXPOSURES

The company has considered a number of risks and exposures during the formation of its plans. These risks and exposures can be considered in three categories; technical, market and legal.

TECHNICAL RISKS

The major technical risks associated with the successful completion of the company's plans are product cost and the actuator design. The product costs are fundamental to the company's direction. To assure that the cost goals are met, detailed target costs have been established for each function of the product. These targets will be continuously compared with actual cost estimates from the inception of design through to product maturity in manufacturing. Any problems with escalating costs will be flagged at an early stage. Alternative designs and procedures can be invoked to bring the cost back to planned targets.

In addition to the basic product design, material control and management are key to reducing the risk of escalating product costs. Material control will be heavily computerized in the startup phase of manufacturing. This will reduce the risk by establishing procedures, methods and reporting techniques early. These procedures will highlight material control and costs problems, and identify causes for management action.

A second technical risk associated with Quantum's plan is the proprietary actuator design. The Quantum actuator does not depend on new technology, but rather on an innovative combination of mature technology. To confirm the design concepts and reduce the risk Quantum will model the actuator very early in the development program. This early modeling will allow the company to react to any technical problem without delay to the business schedule.

MARKETING RISKS

The marketplace represents another area of exposure relative to the company's plans. The pricing of Quantum's products is based on an assumed steep decline in competitors' pricing described in the marketing plan. To reduce the risk associated with greater price erosion the financial plan is based on competitors pricing 5-8% below those projected in the market. In addition the financial plan assumes a 10% year inflation rate on the company costs (not included in prices).

Another exposure associated with the market is unit sales. To reduce the risk of reduced sales impacting Quantum success, Quantum has based its plan on capturing only a small share of the market. Also the company's projection of the available market is very conservative. It is likely that the market will be 30% to 50% larger than the projection used in this plan.

LEGAL RISKS

The third area of exposure considered in the company's plans is legal. To assure a minimum risk, the company employed the services of a general and patent counsel at the company's inception. All precautions have been taken to minimize the concerns of the previous employers of the company's founders. The Quantum founders and their patent counsel met with Xerox (Shugart Associates) attorneys in order to assure Xerox that Quantum will operate in an ethical and above board manner. It was pointed out that the Quantum products, although competing in the same markets, would be considerably different than any Xerox product. At this meeting the Xerox attorneys stated that they had no reason for concern (see Appendix Xerox correspondence).