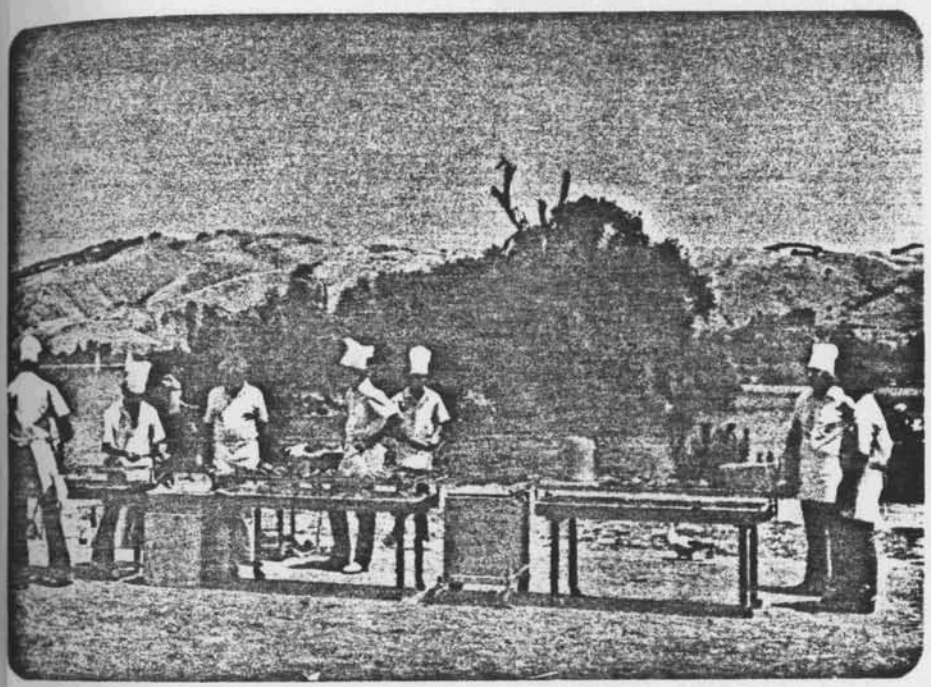
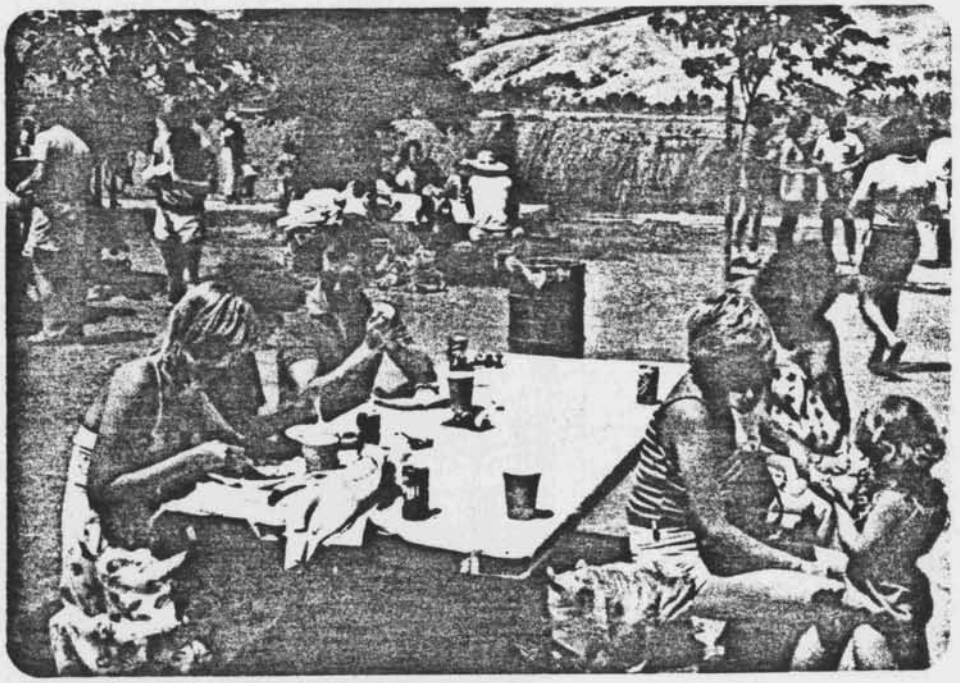
2ND QUANTUM PICNIC

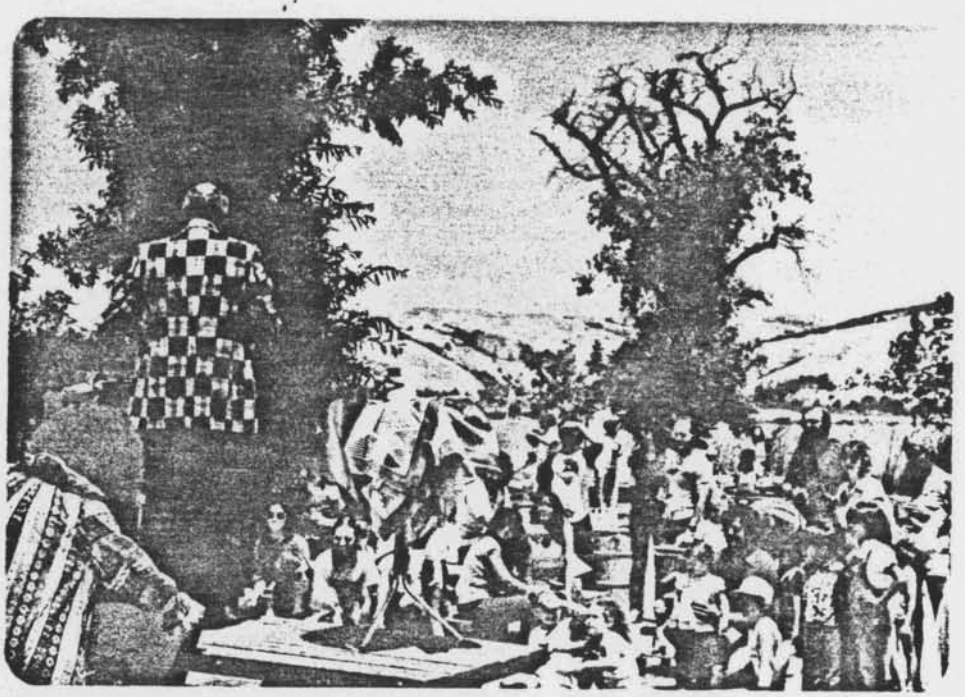
JUNE, 1982

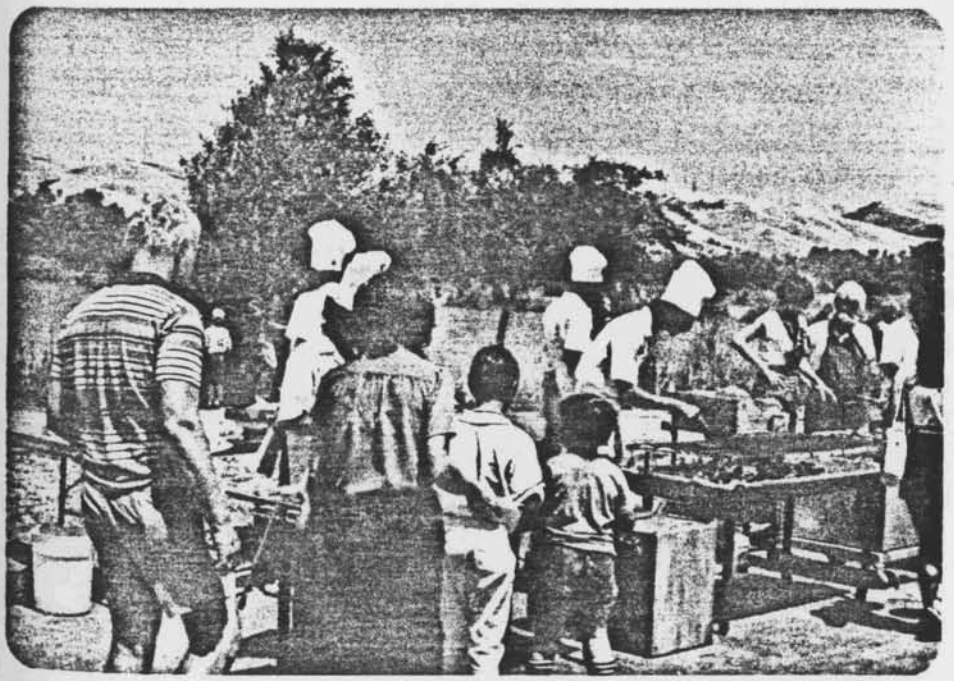




2ND QUANTUM PICNIC

JUNE, 1982



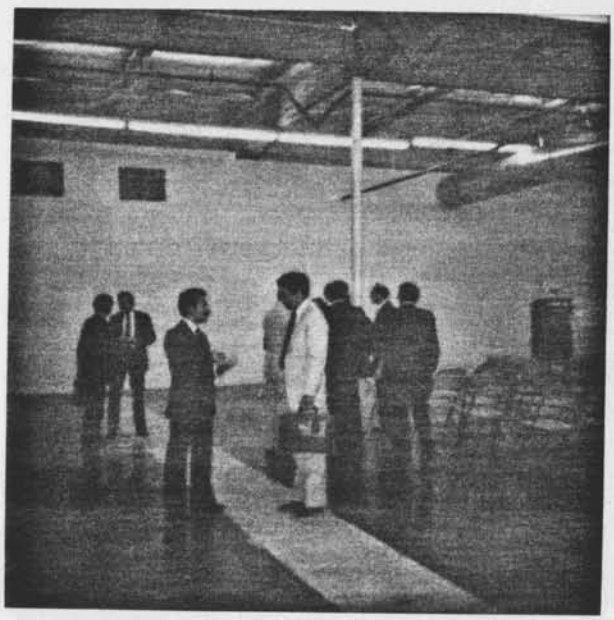


CORPORATE CUP RACE

SUMMER OF 1982

AUGUST, 1982

SHAREHOLDERS MEETING



NATIONAL SALES MEETING

SEPTEMBER, 1982

Major Customers

Altos Computer
Convergent Technologies
Nixdorf
Televideo
Wang Labs

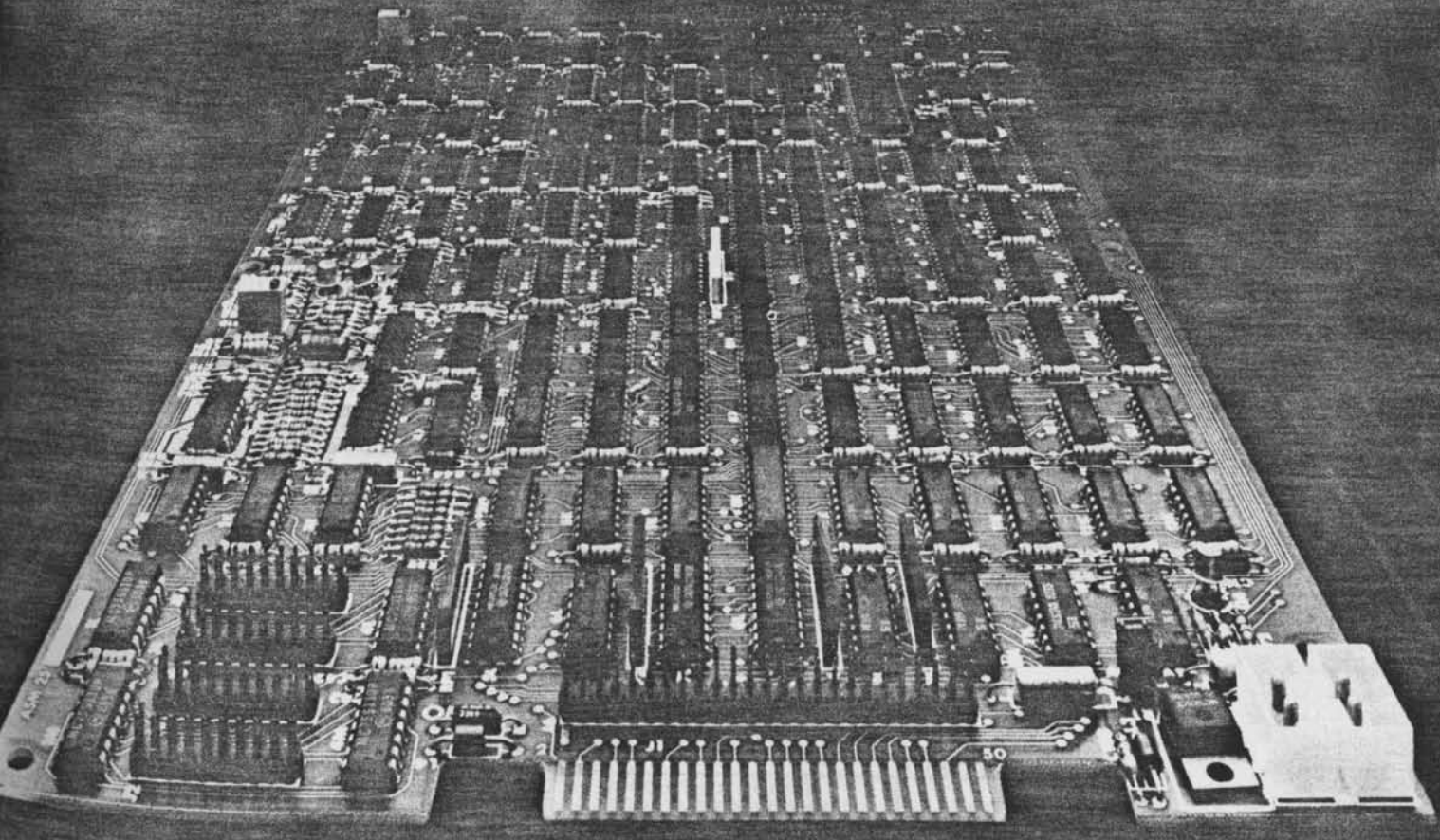
OMTI

OMTI Model 10B 8" Winchester/Floppy Disk Controller

The OMTI Model 10B is a single PCB high performance intelligent disk controller, designed to attach Quantum Q2000 or Shugart Associates SA1000 8" fixed disk drives, and SA800 or SA850 floppy disk drives, to a wide variety of host systems. The 10B provides the ability to control up to four disk drives, which can be any mix of Q2000, SA1000, SA800 and SA850, or their functional equivalents. The 10B provides "bolt on" compatibility with the Q2000 and SA1000 drives.*

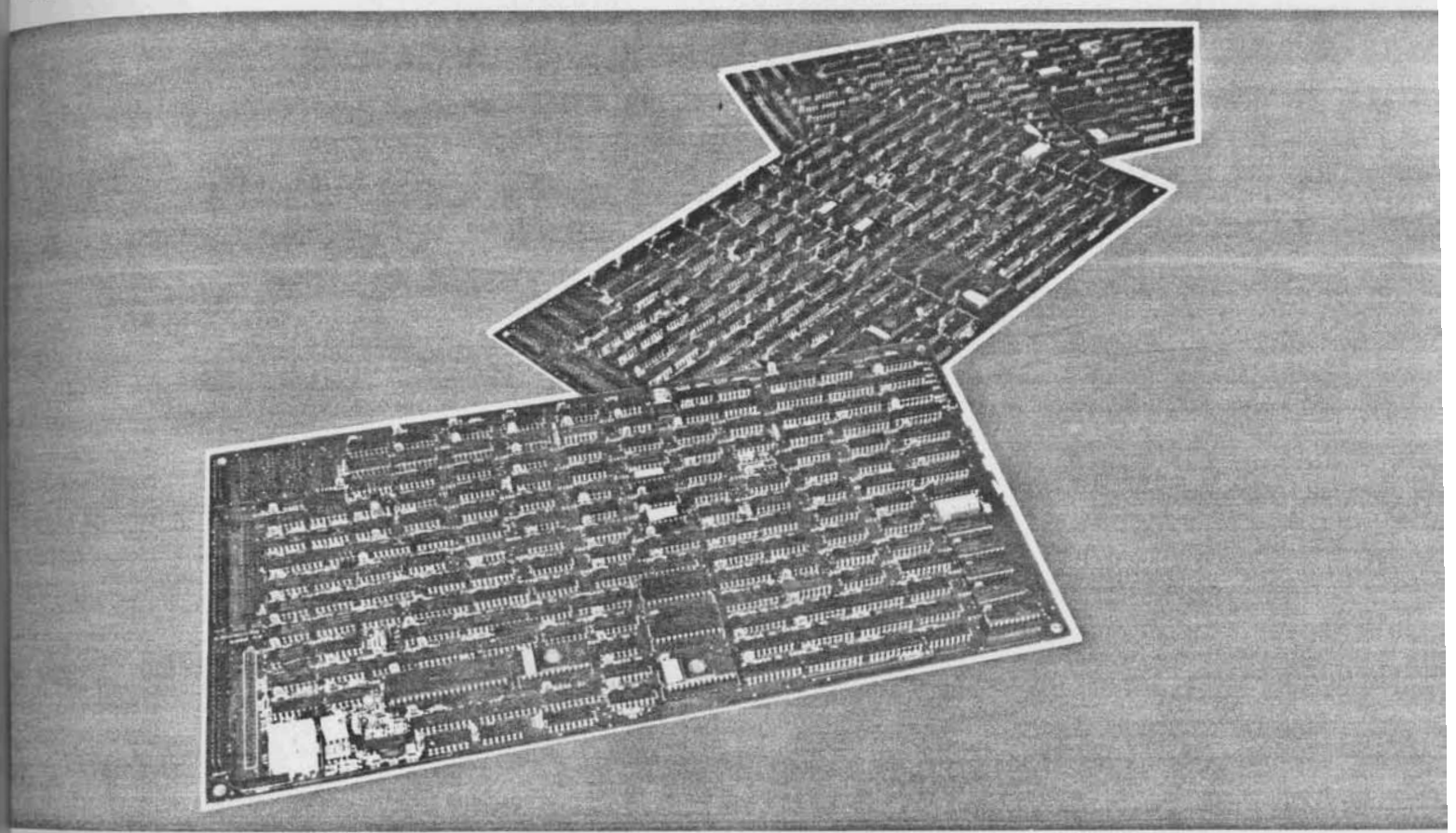
Host attachments are simplified through the implementation of the Shugart Associates SASI standard interface. The SASI interface has become a defacto industry standard with both DTC and OMTI providing compatible controllers. OMTI has also provided compatibility with its series 20 5¼" disk controllers.

**OMTI also provides a model 10A for users who do not require floppy disk backup capability.*



SYSGEN, INC.

Disk Tape Controller SC2021



Description

SYSGEN SC2021 disk tape controller is a high performance, microprocessor-based, single board controller with the capability to interface to a variety of Winchester disk drives and a ROSSCOMP 160 high capacity streaming tape drive.

This product features the unique tape file back-up/restore and file catalog capability, which facilitates efficient tape file management. In addition, the advanced local intelligence of the controller significantly reduces the burden on software interfacing with the system CPU and improves overall system performance and reliability with a 1 Mbytes/sec data transfer rate and automatic data error correction.

With the disk and tape drives, they form a reliable mass storage subsystem.

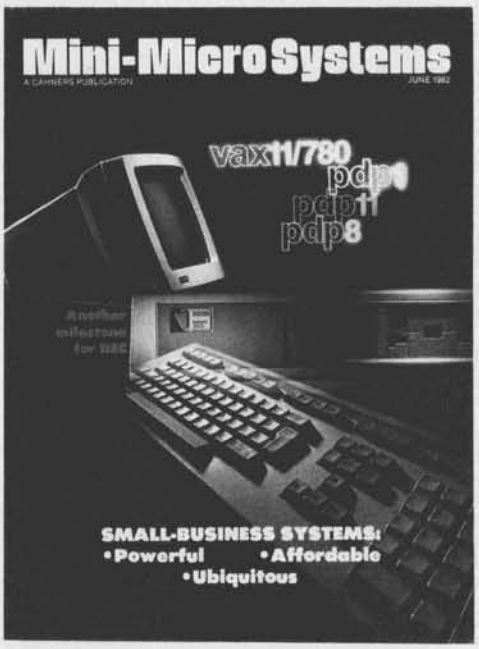
Key Features

- Communicates with the host through the SASI (Shugart Associates System Interface) bus.
- All operations are single command
- Odd parity option over the host bus
- Up to 1 Mbytes/sec data transfer rate across the host interface
- Backup/restore operations are handled in files
- Partial file restore
- Command to scan tape file headers and build the directory
- Command to split 24-track tape drives into subsets of 4, 8 or 12 tracks which speeds up the user's access to the tape data and provides up to 384 tape data files in one cartridge.
- Both physical and logical tape file access capability
- Random read access to tape file
- Tape data interchangeable among different disks
- Direct tape data access by the host
- Non-stop tape streaming at 90 IPS, equivalent to approximately 5 Mbytes/min.
- Automatic tape read-while-write error correction in backup
- Automatic tape read retry in restore
- With the ability to append, utilization of the whole cartridge is warranted
- Statistical counter for the accumulative tape errors
- Integral tape data separator to interface with the low cost minimum streaming tape drive
- Bad track handling is transparent to the system
- On board ECC to detect and correct disk data error
- Local sector buffer
- Overlapped seek
- Automatic seek and verify
- Implied seek and verify
- Concurrent multiple sector transfer constitutes the fast disk copy operation
- Single board controller measuring 8.25" x 15"
- Operated on a single power supply +5V

SC2021 can interface to a variety of disk and tape drives

PRODUCT NAME	UP TO 4 DISK DRIVES FROM THE FOLLOWING GROUP	TAPE DRIVE
SC2021	Quantum Q2010 Quantum Q2020 Quantum Q2030 Quantum Q2040 Shugart SA1104 Shugart SA1105	ROSSCOMP 160

Quantum
Taking the Lead in 8-in. OEM Winchester Shipments



As appeared in June 1982 Edition of Mini-Micro Systems

QUANTUM

Quantum Corporation
1804 McCarthy Blvd.
Milpitas, CA 95035

Mini-Micro World

Quantum taking lead in 8-in. OEM Winchester shipments

Despite the increasing availability of higher capacity (12M- to 25M-byte), 5¼-in. Winchesters and plans by many vendors to offer even higher performance, higher capacity hardware, the demand for low-cost 10M- to 40M-byte, 8-in. Winchesters will continue to accelerate at a strong pace, fueled by the growing demand for μp-based small-business systems and word processors, says an executive at one of the few disk-drive companies founded for the express purpose of building this size drive.

"Systems in these categories are growing at a rate of 40 to 50 percent per year," says Steve Berkley, marketing vice president at Quantum Corp., Milpitas, Calif., "and most of them originally used 8-in. floppy-disk drives for system and file storage." As a result, he says, there continues to be a growing, built-in market for 8-in. fixed-disk hardware. "We're replacing one of the floppies in these systems with a higher capacity Winchester," he explains, "and right now, we're replacing them at a rate of 150 drives per day, six days a week."

That adds up to a lot of hardware, Berkley goes on, noting that Quantum, founded only two years ago by a number of executives from Sunnyvale, Calif., disk-drive rival Shugart Associates and from Sunnyvale-based subsystem builder Systems Industries, Inc. (MMS, May, 1980, p. 47), did $13.8 million in business at the close of its fiscal year last March. Next year, he says, Quantum is looking at $50 million in revenues from the sale of 8-in. Winchesters, and expects to double that figure by the end of fiscal year 1984.

Most of next year's increased revenues will come from the company's existing Q2000 series 10M- to 40M-byte Winchesters, Berkley says, with newer products expected to contribute to 1984's earnings. "Right now, 65 percent of our revenues come from our Q2040 40M-byte drives," he explains, with 30 percent coming from sales of the company's 20M-byte Q2020.

Sales of Quantum's 30M-byte Q2030 drive account for only 2 percent of sales, while its 10M-byte Q2010 accounts for only 3 percent, a figure that reflects the dominant market share held by Shugart's 10M-byte SA1004 8-in. Winchester. "Between the two companies, we're shipping close to 90 percent of all low-cost 8-in. Winchesters," Berkley says. Quantum's Q2040 is priced at $2450 in 100-lot orders; Shugart's 10M-byte SA1004 and Quantum's Q2010 are both priced at $1400.

In terms of numbers, Berkley goes on, Shugart's lower capacity drive is shipping in larger volume in markets where both companies compete. In terms of overall revenues from the sale of 8-in. Winchesters, however, he says, Quantum is posting larger numbers. Moreover, he does not anticipate that Quantum's position of revenue leadership will change. "It's a question of volumes," Berkley explains. "The servo systems and voice-coil actuators proposed by many vendors of higher capacity, higher performance 8-in. drives will remain a production constraint." What it all comes down to, he says, is that no one knows how to build drives using these actuators in large numbers and at low cost.

Shugart's 5M- and 10M-byte SA1000 Winchesters are open-loop drives that use split-band actuators driven by stepper motors—a lower cost, lower performance design derived from the company's floppy-disk drives.

In an effort to get higher performance and higher capacity from an actuator system that could be produced in high volumes, Quantum developed a "hybrid" actuator design. Instead of using stepper motors and split-band actuators to move the read/write heads, the company connected a torque motor directly to a pivot arm onto which the read/write heads are mounted. And, instead of using the incremental steps of a stepper motor to determine head locations, coarse positioning on the Quantum drives is handled by an optical encoder that comprises a scribed glass scale, an LED and a receiver. Fine positioning needed to keep the heads on track is derived from track-location data encoded onto a dedicated sector on the data surfaces of each disk.

While more producible, this type of actuator offers lower performance than the closed-loop servo/voice-coil combination used by other

vendors of high-capacity 8-in. hardware. It does, however, give Quantum's products a performance edge compared to stepper motor-driven drives. Average positioning time on the 10M-byte Q2010, for example, is pegged at 60 msec. compared to 70 msec. for Shugart's SA1000. Use of both coarse- and fine-positioning techniques also gives Quantum hardware an edge on capacities. Shugart's SA1000 provides 256 tracks per data surface at 172 tracks per in.; Quantum's hardware handles 512 tracks at 345 tpi.

Vendors of voice-coil drives also stress higher performance. International Business Machines Corp.'s 3310 Piccolo drive, the only other high-capacity (64M-byte), 8-in. fixed-disk drive to be installed in large volumes, operates at an average access time of 27 msec. This drive provides 359 tracks per surface at a track density of 450 tpi.

Berkley does not see the Piccolo as a direct competitor of Quantum's hardware, however. "There are two reasons," Berkley says. "First, it would be rare for an OEM to be evaluating our drive and a higher performance device such as the Piccolo with the idea of selecting one or the other."

Second, Berkley goes on, IBM and Quantum are pursuing different markets. IBM, he says, is selling 8-in. hardware to system designers that are not constrained by the physical dimensions of the cutouts and depths originally specified for the floppy-disk drives in small-business systems and word processors targeted by Quantum.

Just how much 8-in. hardware with capacities of more than 30M bytes will be shipped over the next few years depends on whom you ask.

Jim Porter, Mountain View, Calif., industry analyst and publisher of *Disk/Trend Report*, remains conservative when estimating the amount of 30M- to 200M-byte, 8-in. hardware to be shipped, regardless of performance level. Porter estimated that 16,000 8-in. drives in the 30M- to 200M-byte range would be shipped by U.S. vendors this year, with that figure climbing to 39,000 next year, and to 85,000 in 1984. He concedes, however, that he may revise his figures upward, based to a certain extent on the amount of hardware that Quantum is shipping.

Newark, Calif., industry analyst Andrew Roman anticipates higher levels of demand, especially for IBM and Quantum hardware. "These two companies control 90 percent of the market for OEM 8-in. drives in the 25M- to 100M-byte range," he says, with Quantum alone accounting for 85 percent of this hardware. Roman predicts that a total of 50,000 OEM Winchesters in this capacity range will be shipped in 1982, bringing Quantum's share of the pie to more than 38,000 drives.

8-in. Winchesters roll off the Quantum assembly line. *Assembly begins at the head of a "clean tunnel" (background) Quantum uses in place of the clean rooms used by Winchester vendors. In a clean-tunnel environment, purified air blows down over the line while assembly personnel work through plastic curtains. Completed drives in the foreground await shipping and testing. Quantum is shipping 8-in. hardware at the rate of 150 drives a day.*

Quantum's own figures are slightly lower. At a ship rate of 150 drives a day, six days a week, Quantum plans to move 46,800 drives, more than 30,000 of which will be 40M-byte devices.

"The real test for OEM Winchester vendors is how quickly production can be ramped up," Berkley says, noting that the company plans to quadruple its manufacturing space and to ship at the rate of 600 units a day by late summer of this year. "The real winners will be those that are geared up to meet high-volume demands."

—*John Trifari*

QUANTUM

Corporate Headquarters and International Sales Office: Milpitas, CA **408 262-1100**
TWX 910 338 2203.

Western Regional Sales Office: Santa Clara, CA **408 980-8555.**

Eastern Regional Sales Office: Salem, NH **603 893-2672.**

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Assemblers

Quantum Corporation's rapid growth has created openings in our production department.

Mechanical

Minimum of 6 months' experience in mechanical assembly.

PCB Soldering

Requires minimum of 6 months' PCB soldering experience, preferably with experience in vacuum desoldering.

Microscope

6 months' to 1 years' microscope assembly experience.

Prototype

2 years' experience in electro-mechanical assembly.

Apply in person at our new facility, 1804 McCarthy Blvd., Milpitas, CA 95035.

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ENGINEER

Mechanical Engineer

Quantum Corporation's rapid growth has created the following excellent opportunity for a Mechanical Engineer to join our expanding operations.

You will be involved in new product development, requiring 3-6 years' related experience, strong analytical skills, and a BSME (MSME preferred). Disk drive experience is desirable.

Quantum offers a superior benefits package, including stock. Please send your resume to Keith Rosheim, Manager, Employee Relations, Quantum Corporation, 1804 McCarthy Blvd., Milpitas, CA 95035.

QUANTUM CORP

QUALITY CONTROL

Manager QC Inspection

Quantum Corporation's rapid growth has created an opening in our QC inspection department for an aggressive, experienced individual to plan, coordinate, schedule and manage the inspection function.

The successful candidate will have a college degree, preferably in QA or one of the physical sciences. Must have experience in inspection and testing and 3-5 years' managerial experience in a QC environment.

We offer a superior benefit program including stock. Send resume to Keith Rosheim, Manager Employee Relations, 1804 McCarthy Blvd., Milpitas, CA 95035.

QUANTUM CORP

ENGINEER

Industrial Engineer

Product development at Quantum includes designing for the total manufacturing process — one reason our Winchester disk drives are the best quality and lowest cost available.

Our small and growing Industrial Engineering Department has an opening for an engineer with a BSIE degree and experience in new products introduction into manufacturing. This position will utilize skills in all classical industrial engineering functions. Applicants should have 3 or more years' experience in assembly of electro-mechanical products. Disk drive manufacturing experience will be advantageous.

Quantum offers excellent salaries and a superior benefits package. Please send your resume to Keith Rosheim, Manager, Employee Relations, Quantum Corporation, 1820 McCarthy Blvd., Milpitas, CA 95035.

QUANTUM CORP.

Equal Opportunity Employer

ENGINEER

Electrical Engineer

Quantum Corporation's success in the 8" disk drive market has created the following opportunity for an Electrical Engineer.

You must be knowledgeable in areas related to complex analog and digital circuit design, low noise amplifiers, filters and basic microprocessor incorporation. You must have hands-on capability, at least 4 years' experience and a BSEE. An MSEE and experience in OEM computer peripherals are desired.

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e are looking for an individual whose long-term al is manufacturing management. The person ho accepts this position will be responsible for orking with development engineering through the sign phase and for ensuring the product's nooth implementation in manufacturing.

he ideal candidate will have a BSEE or a BSME ith good people skills and five years' industrial xperience including supervisory, group-leader, or task team" experience.

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QUANTUM CORP

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Engineering Opportunities At Quantum

Product development at Quantum includes designing for the total manufacturing process — one reason why our Winchester disk drives are the best quality and lowest cost available.

The success of our original product and the development of a number of new products has led to our rapid growth. We've recently expanded our operations into two new buildings, where these excellent opportunities exist:

PCB Production Engineer

You will be highly interactive with several Quantum functional groups and understand, define, optimize and document our total PCB process for high yield and low work in process.

This position requires a good working knowledge of the printed circuit board process from bare fab through assembly and test including ATE, auto-insertion, manual and automatic assembly, components, analog and digital circuits. A BSEE or BSIE with strong electronic skills and 5-10 years' experience are required.

Mechanical Engineer New Product Development

You will be involved in our aggressive new product development. Your background should include 3-6 years' related experience, strong analytical skills, and a BSME (MSME preferred). Disk drive experience is desirable.

Manufacturing Engineer

Your responsibilities will include the design and implementation of manufacturing tooling for moderate-to-high volume electromechanical assemblies. Additional responsibilities include problem definition, concept, interface with machine shops, grooming, documentation and assembly instructions. Requires a BS in engineering or equivalent, plus 4-5 years' experience in tool design.

Electronic Technicians

These positions are responsible for maintaining and calibrating production test equipment. Those duties require 3-5 years' experience troubleshooting analog and digital equipment. Microprocessor experience is desired.

Join Us!

Join us in our new growth phase! Quantum offers its employees excellent salaries and a superior benefits package. To apply, send your resume to Keith Rosheim, Manager, Employee Relations, Quantum Corporation, 1820 McCarthy Blvd., Milpitas, CA 95035. An equal opportunity employer.

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Storage and Back-up – A Complete Solution

All the components needed for a complete winchester storage and back-up system from one supplier. All selected to give the best price perfomance with second sourcing and full technical and service support available.

The A.N.S.I. X3T9 committee in the U.S.A. recently published the Small Computer Systems Interface (S.C.S.I.) specification thereby giving formal recognition to the most widely used intelligent controller interface. The Sysgen SC2000 series of controllers use this interface, provides support for nearly all of the currently deliverable winchester drives and the Archive 20 Mbyte tape streamer which is currently supplied to more than 90% of the ¼" tape streamer users.

By designing a single host adapter and software handler for your system you can use any of the 5¼" ST506 or ST412 compatible drives as well as 8" drives from five different suppliers including Quantum who ship more than 200 of the Q2000 series drives every day. The Sysgen controller allows the tape to be used in streamer or file structured mode giving back-up of 20 Mbytes in 4 minutes and the ability to distribute software on the 300XL cartridge.

A special evaluation kit of Sysgen Controller, Quantum Q2020 winchester and 20 Mbyte Archive Tape Streamer together with all manuals, connectors and tape cartridge is available.

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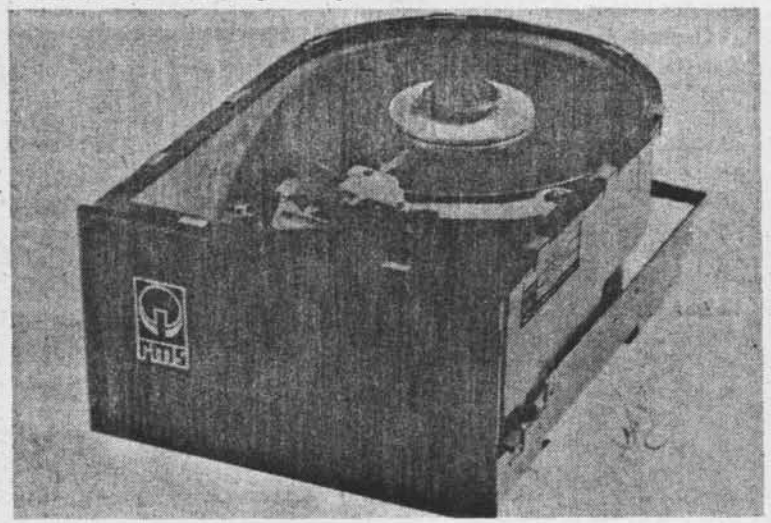
Nya Winchester- och flexskivminnen

25,5 Mbyte: Winchester från RMS

Rotation Memory Systems Inc. (RMS) i Kalifornien lanserar fyra nya 5 1/4" minnen med kapacitet från 6,38 upp till 25,5 Mbyte. Med hjälp av en extra dataseparator, "Data Express II", kan minneskapaciteterna utökas ända upp till 38 Mbyte.

Liksom RMS' nuvarande Winchesterminnen har de ett speciellt utvecklat system för positionering av huvudet med en elektroniskt dämpad drivanordning, mikroprocessorstyrning, elektriskt bromsad axel och en landnings-/uppstartningszon utanför dataarean. Minnena tar samma utrymme som en miniflexenhet och anpassningen motsvarar industristandard.

AD-Teknik AB, Järfälla



RMS 5 1/4-tums Winchester.

Ny DC-motor

Ny DC-motor från Quantum

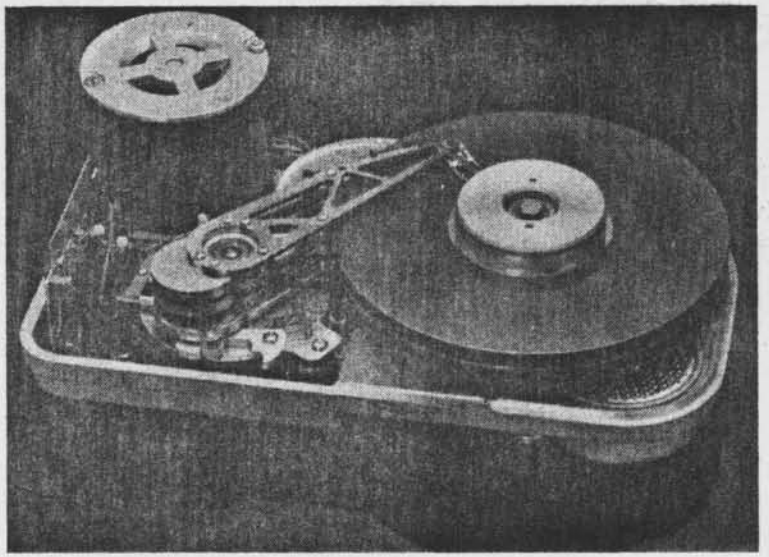
Quantum Corp har tagit fram en DC-motor till sin serie Q2000, 8" Winchester disk-drives.

Quantum har konstruerat motorn så att den är direkt utbytbar med den AC-motor, som produceras nu. Detta tillvägagångssätt har gjort att förändringar i design och produktionsprocess är minimala.

Den DC-drivna motorn finns på marknaden sedan juni 1982.

Quantum startade 1980 och tillverkar Q2000-familjen, som består av 10-, 20-, 30- och 40-MB Winchester disk drives för OEM-marknaden.

Quantum marknadsförs i Sverige av Scancopter AB, Bromma.



30 Mbyte 8", Winchester från Quantum.

Andra generationens flexskivminnen från Micropolis

Micropolis Corporation har startat fullskaleproduktionen av sin nya 1100-serie 5 1/4" flexskivminnen. De nya 96/100 tpi-minnena har prestanda som hos den äldre 1015-serien men en

"Vi såg samma tre eller fyra problem dyka upp ideligen hos OEM-kunder, oavsett vilket fabrikat av 96 tpi-minne de använde" säger försäljningschefen Dennis Resnik. "De vanligaste klagomålen gällde störningar från bildskärmar och kraftförsörjning, instabilitet i justeringen och irriterande rare som de gamla minnena men genom att använda dubbla chassin har man fått en kraftig förbättring av den mekaniska stabiliteten och avskärmningen av skrivhuvudet. Ytterchassit sägs tåla mycket kraftiga mekaniska stötar och inte ens direktkontakt med en bildskärm skall ge datafel. Micropolis hävdar

Kalkylatorer:

Billigaste HP:n för

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per l'intera gamma di dischi winchester da 8"

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- Bassa dissipazione
- Alta velocità di accesso
- Compensazione di temperatura
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- Una serie di controllori con standard S.A.S.I. per una semplice e rapida integrazione con i sistemi più comunemente usati
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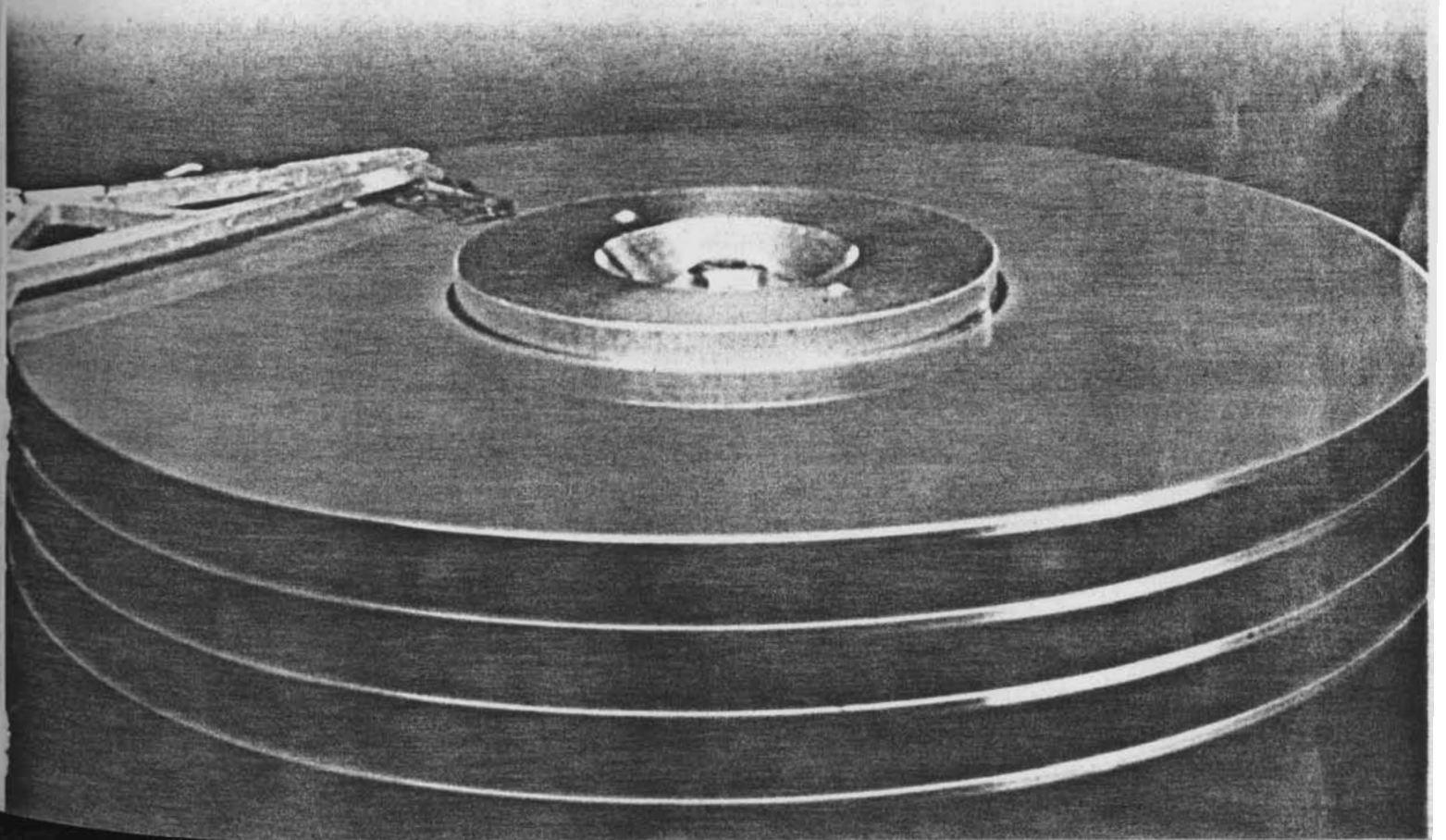
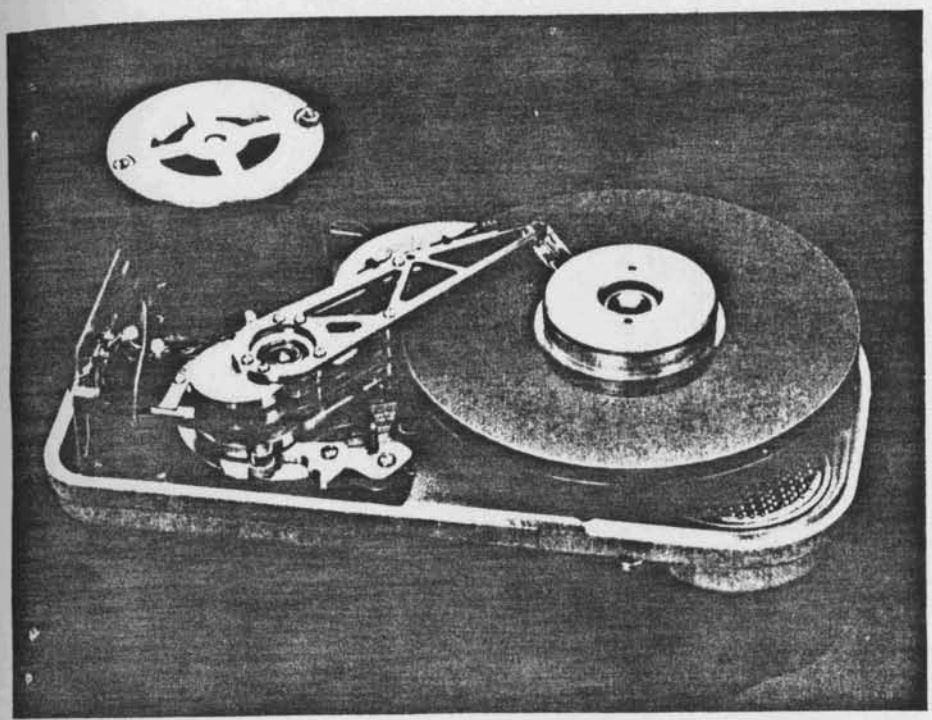


Quantum Corp. commercializzata dalla Digital DP

TORINO — La Digital Data Products (DDP), nota per distribuire le memorie rotanti della C.I.I. Honeywell Bull, ha annunciato l'acquisizione della distribuzione a livello nazionale dei disk drive della società americana Quantum Corp..
Tra i prodotti della casa americana ricordiamo la serie Quantum 2000, una famiglia di disk drive winchester da 10, 20, 30 e 40 Mbyte ed 8 pollici, con dimensioni esterne e segnali dati e controllo pienamente compatibili con lo standard dei floppi 8", tali da permettere un collegamento «daisy-chain» tra winchester e floppy disk.
La piena compatibilità è anche garantita a livello di tensioni di alimentazione, mentre l'alta capacità ed il basso costo sono il risultato di un nuovo sistema di posizionamento della testina.
La serie Quantum 2000 usa un motore lineare con compensazione di temperatura, invece del tradizionale «stepper-motor», che permette di raddoppiare la densità delle tracce e quindi la capacità del disco senza intaccare il fattore costo. Un Mtbf di 8000 ore colloca la serie 2000 ai massimi livelli di affidabilità.

Nuovo controller serie Marksmann per unità a dischi

MILANO — La CDS, Century Data System, azienda del gruppo Xerox, già affermata per la produzione delle unità a disco Trident da 50, 80, 200 e 300 MB, utilizzati su vari piccoli e medi calcolatori, lancia in Italia, attraverso la Telcom, il controller «Serie T» in grado di supportare le unità a disco fisso in tecnologia winchester serie Marksmann da 20, 40, 80, 160 MB e le unità di back-up a nastro magnetico Dei, da 1/4 di pollice di tipo «streaming» da 20 MB.
Le caratteristiche del controller Serie T permettono un back-up fuori linea (da disco a nastro magnetico) a 5 Mb al minuto, un back-up selettivo di file con ripristino selettivo di file ed un back-up trasparente.
Il controller è in grado di supportare una o due unità a disco di qualsiasi capacità e da una a quattro unità a cassetta Dei, permettendo così di creare un complesso di memoria con relativo back-up a «misura di utilizzatore».
L'interfaccia di tipo parallelo è facilmente adattabile a qualsiasi tipo di calcolatore, ma sono disponibili anche adattatori per bus S100 ed altri tipi di bus standard.



Disk drive Winchester da 8" serie Quantum 2000.

garantita anche a livello di tensioni di alimentazione.
La serie Quantum 2000 usa un motore lineare con compensazione di temperatura (invece del tradizionale steppermotor) che permette di raddoppiare la densità delle tracce e quindi la capacità del disco. Il MTBF è di 8000 ore.
La DDP è inoltre in grado di fornire una serie di controller, con interfaccia SASI, ed host adapter che permettono un'immediata integrazione della serie Quantum 2000 con qualunque sistema.

(Quantum — DDP, Torino)

Ulteriori informazioni inviando la cartolina con **rif. 60**

Miglioramenti ai Tektronix 4050

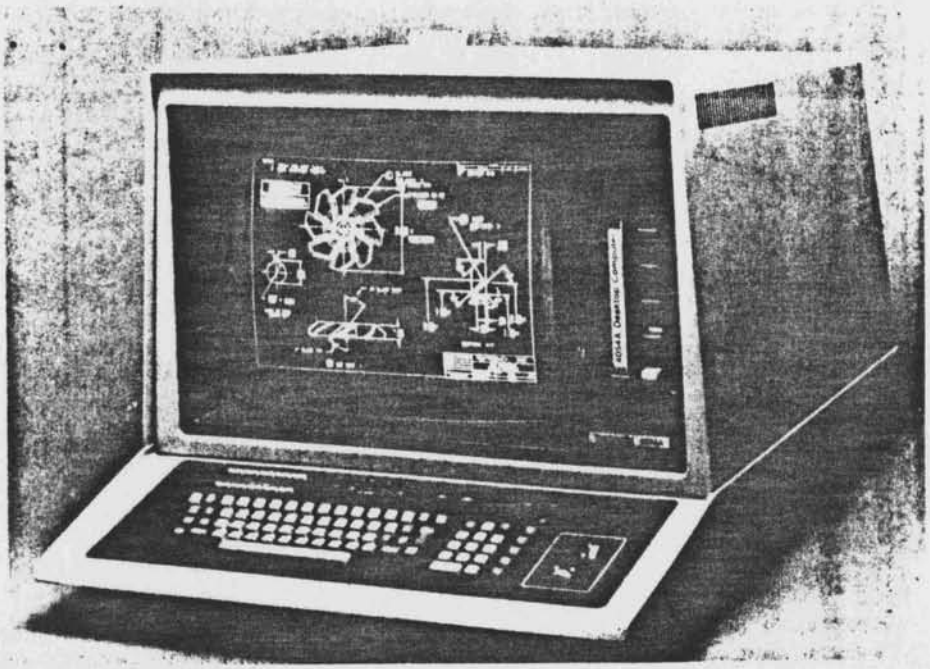
La Tektronix ha apportato notevoli migliorie ai calcolatori da tavolo 4052 e 4054: modifiche al linguaggio BASIC, accresciuta potenzialità dell'interfaccia GPIB e maggiore velocità di elaborazione. Le nuove versioni, denominate 4052A e 4054A, sono dotate di tubi storage ad alta risoluzione da 11" e 19". Sullo schermo da 19" (mod. 4054A) è possibile utilizzare immagini a colori in refresh.

Contemporaneamente all'uscita dei nuovi modelli, viene presentata una memoria per la gestione dei file: si tratta di una RAM opzionale, disponibile in versione da 256 e 512 kbyte, che permette di aprire fino a nove file per effettuare confronti tra i dati o per effettuare il sorting. E' possibile inoltre l'accesso sequenziale o casuale a programmi, o a loro segmenti, in codice ASCII o binario.
Le modifiche apportate alle versioni A possono venire realizzate anche sugli attuali calcolatori della serie 4050.
Tra i miglioramenti apportati al linguaggio BASIC segnaliamo: nomi di variabili a più caratteri, subroutine con variabili locali, maggiore capacità di gestione delle stringhe. La nuova interfaccia GPIB permette un più rapido trasferimento dei dati ed un migliore controllo delle linee.
I calcolatori Tektronix Serie 4050 supportano il software PLOT 50, costituito da package per applicazioni di grafica, statistica, preparazione documenti, progettazione e disegno.

(Tektronix — Milano)

Ulteriori informazioni inviando la cartolina con **rif. 61**

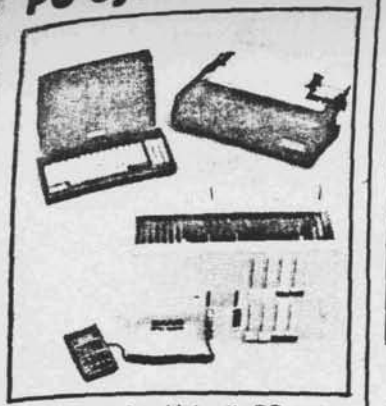
Calcolatore da tavolo Tektronix 4052A.



Plotter digitale a colori Gould Bryans

La Gould Bryans ha presentato un plotter digitale in grado di operare fra l'host processor e un'altra periferica (es. una stampante) in una configurazione a daisy-chain in modo da non richiedere connessioni aggiuntive in

PC-system

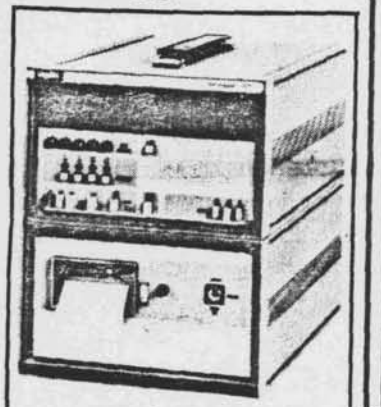


Saab har utvecklat ett PC-system med analog reglering — P, PI och PID — Saab IPC 863.

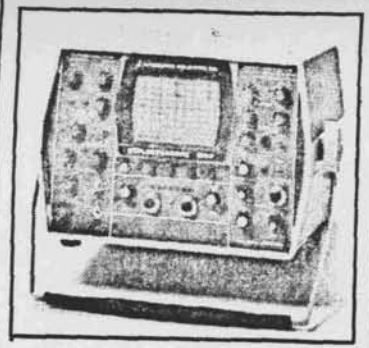
Systemet har en extra processor för analog reglering och bildskärmskommunikation. Som standard ingår larmutskrifter och presentation av är- och bör-värden. Det hanterar totalt 512 in-, 512 ut-, 256 analoga in- och 64 analoga utgångar med en svarstid på 2,5 ms och en samplingstid av de analoga ingångarna på 0,1 s. Vidare ingår linjärisering av PT 100 ingångar, rotutdragning, möjlighet till kod- och kaskadkoppling och anslutning av backup-regulatorer.

Marknadsföring:
Saab-Scania AB,
Box 1017, 551 11 Jönköping
Tel 036/11 97 80.

Portabel datalogger



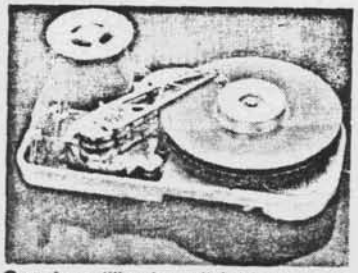
Ultraljudapparat



Automation Industries, Sperry, USA introducerar en ny systemapparat, typ M91, en vidareutveckling av sin tidigare ultraljudapparat typ M90. M91 är avsedd för provning av den inre strukturen hos metaller, plaster, kompositer och keramiska material. Apparaten kan utrustas med olika sändare/mottagarenheter, monitorer, DAG-enhet, C-Scan-registreringsenhet och alarmenhet.

Svensk representant:
Aroscan AB,
Box 6029, 720 06 Västerås
Tel 021/12 82 80.

8" Winchester

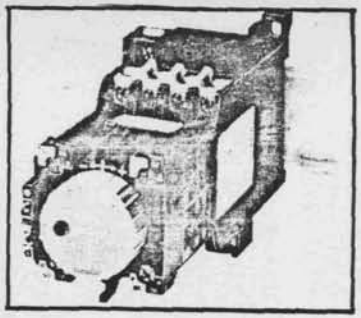


Quantum tillverkar diskdrivers med kapaciteter från 10 till 85 Mb.

Utrustningarna är helt Shugart-kompatibla.

Nordisk representant:
Scancopter AB,
Box 20043, 161 20 Bromma
Tel 08/28 94 25.

Tidrelä

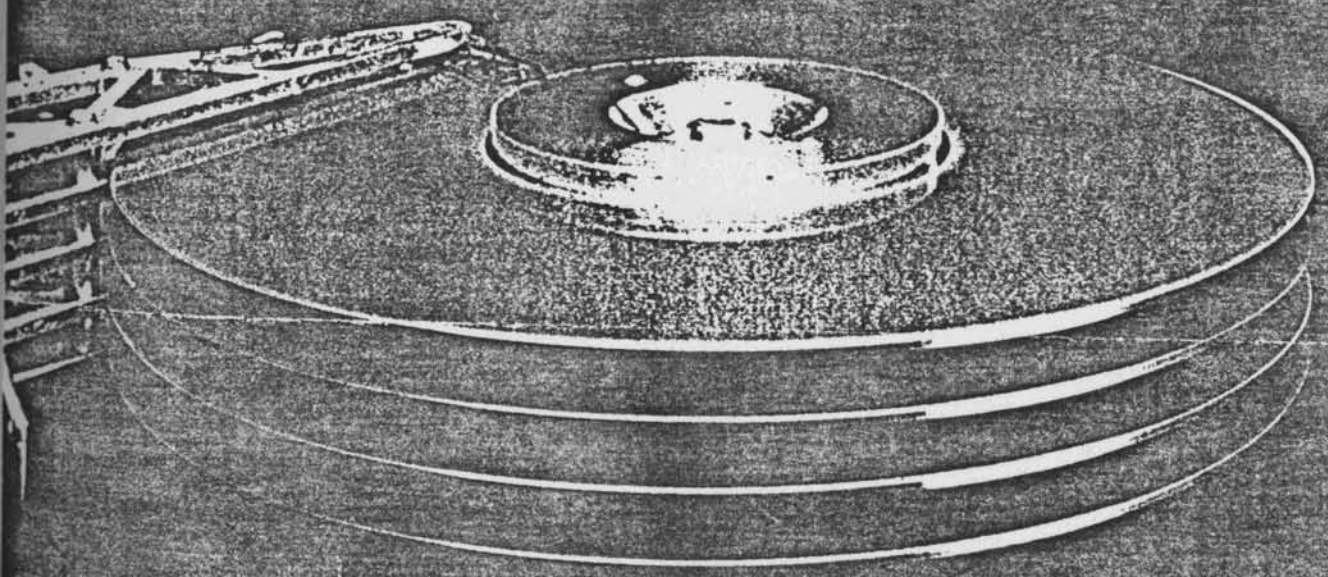


Klöckner-Moeller har utvecklat ett relä med till- och frånslagsfördröjning — DIL08-33-T.

Relät har både momentant verkande — 2 slutande och 2 brytande och kontakter med till- eller frånslagsfördröjning — 1 slutande och 1 brytande. Fördröjningen är inställbar mellan 0,2 — 30 eller 20—180 s. Med en trådbrygga omvandlas relät till en pulsgivare med valbara till/frántider — 'wischrelä'.

Svensk representant:
Sandblom & Stohne AB
Box 30052, 104 25 Stockholm
Tel 08/54 11 60

COMPUTER FORUM



FÜR DEN TECHNISCHEN UND WISSENSCHAFTLICHEN BEREICH

Lieber Leser

Es ist unbestritten, dass die Zahl der Computer-Anwendungen, und damit der Automatisierungsgrad, im industriellen Bereich ständig wächst. Dank dem vielfältigen Angebot der Computerindustrie können heute Mini- und Mikrocomputersysteme für die Prozessautomatisierung rationeller als noch vor einigen Jahren eingesetzt werden. Es stehen uns hochintegrierte, universelle Schaltkreise, intelligente Interfaces und Peripheriegeräte, leistungsfähige Rechner- und Datenkommunikationssysteme zur Verfügung. Zudem ist das Angebot an Systemsoftware und Anwenderprogrammen (Graphics, CAD) beträchtlich. Im Hintergrund der rasanten Entwicklung der Computer-Industrie steht die Informatik, die Lehre von der automatischen Verarbeitung von Informationen. Die Informatikausbildung von Ingenieuren in Industrie und Schule muss erste Priorität haben. Sei es in der technischen Informatik, sie befasst sich mit der Hardware, der Digitaltechnik, dem logischen Entwurf mit modernen Design Möglichkeiten wie Zustandsgraphen, FPLA, PAL und Bit-slice Prozessoren (diese werden schon in 20% der speicherprogrammierbaren Steuerungen eingesetzt), oder in der praktischen Informatik, welche sich mit Programmierung, Datenstrukturen, System Software, Projektabwicklung usw. befasst. Eine solide Grundausbildung in Informatik, sowie Erfahrung, Marktübersicht und eine ständige Weiterbildung bildet die Basis für eine erfolgreiche Tätigkeit im industriellen Bereich. Ohne diese Voraussetzungen können keine kompetenten Rechnerevaluationen ausgeführt werden, oder Entscheidungen getroffen werden, ob für die Realisierung eines Automaten diskrete Logik, mikroprogrammierte Hardware, ein Mikro- oder Minicomputer einzusetzen sind.
Die enorme Informationsflut, welche uns der technische und wissenschaftliche Fortschritt beschert, kann nicht nach den Lehren der Informatik für den Benutzer verarbeitet werden. Es braucht dazu ein Medium für die Verbreitung gezielter Informationen, damit der fachlich interessierte Leser sie «empfangen», verarbeiten und notfalls ablegen kann. COMPUTER FORUM berichtet nicht nur über Produkteneuheiten: Computer, Peripheriegeräte, Datenerfassung- und Übermittlungssystem, Software, Dienstleistungen usw., sondern auch über Wissen. Der Fachteil ist dazu bestimmt, aktuelle Informatik-Beiträge aus Industrie, Lehranstalten und Forschungsinstituten zu veröffentlichen. Wir beabsichtigen, spezielle oder allgemein interessierende Themenkreise in lockerer Folge über mehrere Hefte zu behandeln.
Einige Beispiele: Standardisierungen, Real-Timefähige höhere Programmiersprachen, Datenkommunikation, Zustandsmaschinen, Mikroprogrammierung, Computer aided Design, u. a.
Mit dem Vermitteln von kompetentem Fachwissen leisten wir unseren Beitrag an Ihrer Weiterbildung.

H.J. Baumann

Zum Titelbild

QUANTUM

QUANTUM CORPORATION
COMPANY BACKGROUNDER

Quantum Corp. And The Disk Drive Marketplace

Quantum Corporation was founded in March, 1980 in order to address a major opportunity in the low cost disk drive market: the explosive growth in the low cost portion of the information processing industry--small business systems, word processing products, personal computers, intelligent terminals and general purpose mini and micro computer products, all of which are experiencing annual growth rates of from 35 to over 50 percent.

Data storage devices such as disk drives are an essential element of these low cost systems. Market demand trends are toward lowest cost fixed disk drives as end-use demand for computers is growing most rapidly in lowest cost segments. The high demand for such systems has drawn a number of companies into the development of eight inch fixed disk drives. These products are based on IBM "Winchester" head and media technology. Key attributes of fixed disk drives as viewed by purchasers are cost per function, cost per byte stored, reliability, and storage capacity. Form factor, or size

compatibility with floppy disk drives is a key benefit in many applications.

Most entrants in this field have elected to develop high performance products aimed at providing a reduced size product alternative for those systems currently using high performance 14 inch disk drives. Two large companies--Shugart Associates and Memorex and now Quantum--have taken a different direction. They have developed products which provide a low cost, readily integrated upgrade for OEM customers of eight inch 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 capacity and performance advantage of Winchester technology with the enormous acceptance of eight inch floppy disk drives as a key small system building block and near universal medium of data interchange and backup.

Key technical differences between low cost and high performance eight inch Winchester products are in spindle drive, head actuator and track positioning technologies utilized and optional features offered.

Multiple Sourcing Trend in Low Cost Peripherals

Security of supply and multiple sourcing are becoming increasingly important criteria in low cost peripherals

selection. OEM customer awareness and concern have grown significantly in these areas in recent years as demand for low cost computing systems and peripherals has exploded. Alternate sourcing has become a major parameter in procurement decisions along with requirements for product quality, reliability, support and low cost.

Quantum Establishes SA1000 as Industry Standard

Quantum is the third company to introduce a low cost floppy-like fixed disk Winchester product. Sales of Quantum products (see Product Release) will be made primarily to OEM customers who are today using eight inch floppy disk drives. The company's products are completely compatible with Shugart Associates SA1000 products. Shugart today dominates both the floppy and 8-inch Winchester disk drive OEM markets with over 60 percent marketshare.

By second sourcing Shugart Associates, Quantum projects its products will receive broad exposure and rapid acceptance in the market, leading to the capture of a significant share of the low cost eight inch fixed disk market. Several other factors which will assure Quantum of a leading position over the long term in this market include:

o an undiluted single product focus;

o a product family based on innovative combinations of mature technologies rather than unproven pioneering technologies;

o a broadly balanced and experienced management team;

o a focus on low cost, high volume manufacturing, based on a modular assembly line concept to permit smooth, incremental expansion of production capacity;

o commitment to a corporate strategy that is market responsive, rather than technology driven;

o sound financial resources to support rapid growth in a highly competitive market.

Innovative Product Technology

Quantum's first products will be 10, 20, and 30 megabyte disk drives compatible with Shugart Associates 5 and 10 megabyte SA1000 drives (see Product Release). A generation ahead of the other entrants in the low cost eight inch disk market, the unique design of Quantum's Q2000 (see Technical Backgrounder) results in a doubling of the data recording area density while retaining compatibility with the SA1000. It reduces by one half the recording media and read/write heads required for a given storage capacity. Additionally, the Q2000 utilizes up to three disks to provide three times the drive capacity of the largest capacity (two disk) SA1000.

Quantum's strategy is to apply low cost, well proven design and manufacturing technologies to provide OEM customers with a logical and evolutionary step in memory products without the risks and supply uncertainties inherent in products using untried, pioneering technologies.

Powerful Management Team

The founders (see Management Backgrounder) and key executives who make up the top management of Quantum have backgrounds in all aspects of the low cost computer peripheral business, including general management, marketing, engineering and manufacturing. Most of Quantum's management has had recent experience with the industry leader in low cost disk drives--Shugart Associates. Quantum's management team has played a major role in product development, manufacturing and marketing of products that have created the present exploding OEM market for low cost memory products.

High Volume Manufacturing Commitment

Central to Quantum's strategy is a commitment to high volume production. Quantum's engineers have designed the Q2000 to be manufacturable in high volume at low cost right from initial concept. Cost-effective manufacturing process, tooling and test equipment have been made an integral part of drive

development. The Q2000 has been developed from a base of direct experience in the design and manufacture of the industry's most successful floppy and fixed disk products.

An innovative modular clean tunnel assembly line approach is used to allow rapid growth of production capacity. Gravity flow racks and conveyor systems are used to kit parts for production. Subassembly and final assembly lines are located for minimum material movement between lines. Each line module contains its own clean area air system to provide a contamination free environment for assembly. Final test operations are designed to handle the output from several lines. As production demands increase, assembly line modules can be added to increase capacity smoothly without impacting product quality or productivity of other line modules.

Market Driven Product Strategy.

Quantum's initial strategy will be to service the OEM market by making maximum use of its position as the first--and only to date--independent, single product focused supplier of industry standard Shugart Associates compatible low cost fixed disk drives.

Long term, of course, success depends on the ability of Quantum management to stay abreast of on-going trends in market needs. Fundamental in future product plans is Quantum's commitment to low cost, high volume memory products.

Quantum is well positioned to make use of evolving disk drive technology. Magnetic media and head technologies will allow at least an order of magnitude increase in recording density in less than a decade. Thin film recording heads using semiconductor fabrication techniques will soon be applied to low cost OEM products. Higher performance magnetic media, including higher coercivity particles and sputtered or plated thin film disks will also eventually be applied to low cost disk drives. New, exotic technologies will only be applied when they mature to where OEM customers can be assured of high reliability, delivery security, and maximum cost effectiveness.

Increasing OEM customer demands for compatible multiple sources of new disk drives figure prominently in Quantum's product growth plans.

Resources For Growth

An initial round of venture capital financing was completed in June, 1980, resulting in investment of over $3 million from Bank of America Venture Capital Corp.; Mayfield Fund III; Sutter Hill Ventures; Kleiner, Perkins, Caufield & Byers; and Continental Illinois Venture Capital Corp.

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QUANTUM

QUANTUM CORPORATION
TECHNICAL BACKGROUNDER

Quantum's Jump Forward
In 8" Fixed Disk Drives

Quantum's initial family of low cost eight inch fixed disk drives are based on an innovative combination of mature, reliable technologies, rather than any radical leaps in unproven technology. The result is a capacity per disk that is more than double that of competitive products at costs competitive with older technology drives. Moreover these advantages are achieved with a product configuration that is totally compatible with the SA1000 of Shugart Associates, the industry leader.

Cost objectives have been met by rigorous attention to both drive architecture and individual functional elements to assure the lowest cost while still meeting or exceeding basic SA1000 performance and reliability standards.

To achieve the cost, compatibility and capacity objectives, Quantum's Q2000 family incorporates a number of innovative design features including:

- o a proprietary rotary moving coil head actuator,
- o a unique track positioning system,
- o microprocessor control of drive functions.

Improved Actuator Design

To achieve double the track density of competing eight inch fixed disk drives, Q2000 drives incorporate a rotary moving coil torque motor head actuator and temperature compensation servo. Competing devices use open loop stepper motor actuators.

While adequate for low track density applications, steppers are inherently unsuited for higher capacity or performance products. Increasingly costly mechanical, magnetic, and electronic requirements cause steppers to be non-competitive at higher track densities.

For higher track densities, one alternative is the use of a linear voice coil actuator. The limitations of this approach are that it requires a very expensive magnetic structure, and additional expensive bearings to support the structure and keep it in a very precise and accurate plane of motion.

Another alternative is the rotary voice coil actuator, which eliminates some of the bearings necessary in the linear motor approach. While it can be made more accurate than a stepper, it is still expensive in comparison to a stepper motor. The magnetic structure of a rotary voice coil is complex and costly. Also, the bearings must be capable of withstanding considerable sideways stress, more so than the linear motor approach. So while the bearing structure is simpler and

somewhat less costly, it requires a much more sophisticated--and expensive--structure to withstand those sideways stresses if reliability is to be assured.

The Quantum solution combines attractive aspects of all these previous approaches in an innovative rotary moving coil actuator (patent pending). A very simple mechanism, it creates pure torque with no sideways stress on actuator bearings. It is balanced statically so that the drive can be rotated in any direction without head or arm movement. Without sideways stress, the bearing structure used can be significantly lower cost yet more reliable than those used in alternate designs.

Its construction is simple and straight-forward, requiring only a ring magnet, two flat plate magnetic circuit elements, a single plane moving coil, and a two bearing structure. It is driven by a simple two phase electronics system. A high efficiency design, it incorporates a low inductance coil resulting in low power consumption.

With an average access time of 50 milliseconds for the 10 MByte Q2010 and 60 milliseconds for the 30 MByte Q2030, it is faster than stepper systems and approaches performance of the more expensive voice coil systems.

Imaginative Positioning Technology

Quantum's disk drive products incorporate a unique

combination of techniques to significantly enhance positioning accuracy and timing.

Optical Encoder. For referencing track locations, an optical position encoder is located on the actuator. In keeping with Quantum's product design philosophy the optical encoder is fabricated using mature and reliable glass reticle/LED/photodiode technology historically used in low cost precision positioning systems.

The result is an encoder system that is accurate to over ten times the track density of present Quantum products, leaving considerable room for growth of the family to higher track densities.

Temperature Compensation. Higher track density disk drives require temperature compensation to assure accurate track location and reliable operation. In the past this need has been widely dealt with by specifying one disk surface as a dedicated track position reference surface. This surface contains a series of continuous servo tracks to which the drive logic references read/write head location. When the location of these reference tracks vary with temperature, the system senses this and adjusts head position accordingly. Drawbacks to this approach are that it reduces the amount of disk area actually available to the user in a system and significantly increases drive cost.

The requirement for this "track following" reference surface is eliminated in the Q2000 family by providing direct track position feedback from the disk surface itself in a manner that is transparent to both the controller and the host system.

Capable of updating track position 50 times a second, this temperature compensation servo technique takes advantage of "index" timing space at the end of each disk track to encode track location information between the last inter-record gap and the index pulse.

On initial drive power-up, and continuously thereafter, an on-board microprocessor reads actual track and head location coding once each disk revolution and compares it with actuator position information from the optical encoder. Any head position error sensed is then used to offset the actuator position to precisely center the head on any intended track.

The microprocessor is the industry standard 8048. In addition to track positioning, all drive logic functions are under control of the on-board microprocessor.

Shugart Associates SA1000 Compatibility

Low cost eight inch fixed drives today are targeted for 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.

For this reason Quantum has designed its family of fixed disk drives for compatibility with Shugart Associates industry standard 8-inch floppy and fixed disk drives. Shugart today leads both these product areas with over 60 percent marketshare.

Quantum's disk drives use low mass, low load force IBM Winchester type, contact start/stop head technology and 200 mm OD, Winchester type media.

Physical, interface, and power supply characteristics are aimed to closely match those of floppy disk drives. Packaging is carefully constrained to allow drive mounting in the exact physical envelope using the same attachment hardware as eight inch 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.

Quantum provides OEM users the option to build their own data separators and controllers or to purchase them through Quantum or various industry sources. Controllers compatible with SA1000 and Q2000 disk drives are available today or being developed at major controller houses. Quantum offers a line of controllers and data separators to aid customers in drive evaluation and system development. Also Quantum provides its customers with recommended data separator designs for integration into custom controller designs.

Quantum believes its Q2000 product offering provides a uniquely competitive combination of:

- o cost advantages,
- o compatibility with industry standard SA1000 products,
- o capacity growth advantages,
- o performance improvements,
- o corporate focus.

These benefits, responding to OEM market needs for low cost memory products, are keys to Quantum's anticipated success.

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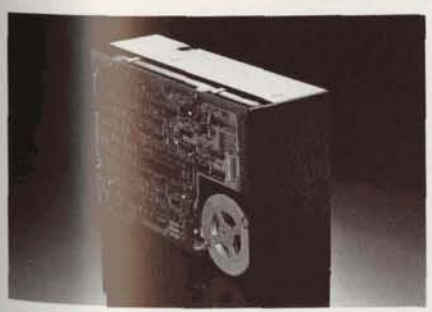
QUANTUM

Quantum 2000 series low-cost 8-inch fixed disk drives

The Quantum 2000 series is a family of 10-, 20-, 30- and 40-megabyte 8-inch fixed disk drives in an 8-inch floppy-size package. These reliable Winchester drives provide OEMs with a low-cost upgrade of floppy disk and lower-capacity Winchester-based systems.

Q2000 drives are fully compatible with the current industry-standard 8-inch Winchester drives, yet provide two to four times the storage capacity, at a lower cost per megabyte.

The higher capacity and low cost are the result of a new track positioning system. Quantum uses a rotary moving coil actuator and temperature compensation servo instead of a conventional stepper motor actuator. This provides twice the track density and per-disk capacity, without increasing cost.



Power supply and mounting requirements are fully compatible with industry-standard 8-inch floppy drives. Drive control and data signals use the same pin assignments as compatible floppy drives, allowing daisy-chaining of fixed and floppy drives.

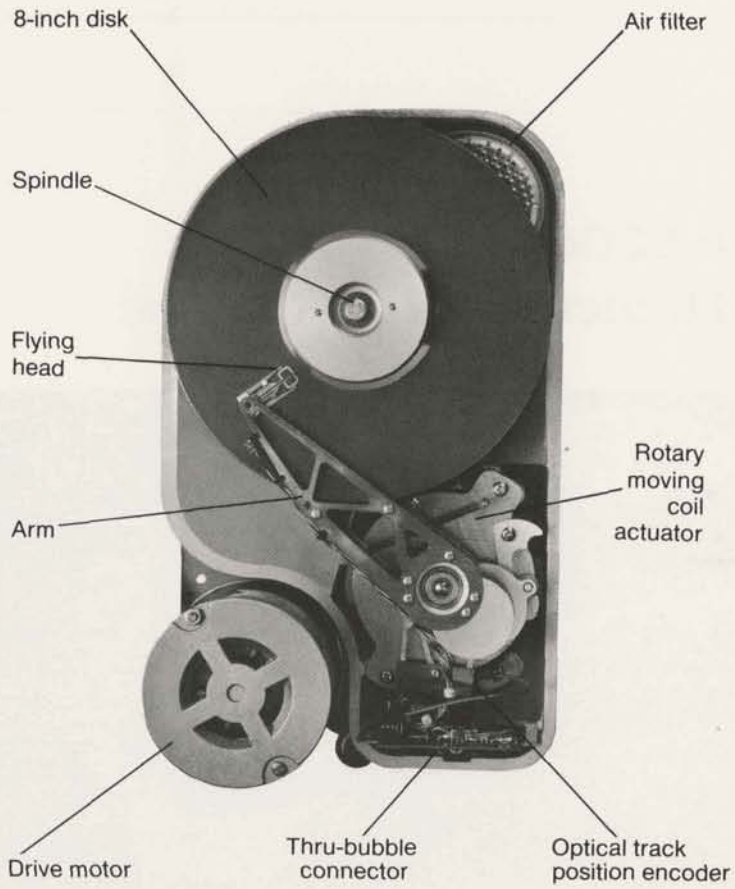
DC voltage requirements are identical to those for standard floppy drives and data cartridge streamers. The same power supply can be used with Quantum 2000 and various back-up drive options.

Key Features

- 10.7, 21.3, 32.0 and 42.7 megabyte (unformatted) storage capacities
- Full interface, format and power supply compatibility with the current industry-standard 8-inch Winchester drives
- Physical dimensions and mounting holes identical to those of standard 8-inch floppy disk drives
- Lowest-cost fixed disk drives in the 10- to 40-megabyte capacity range
- 4.34 megabits per second transfer rate
- Available in AC or DC power options
- Proven Winchester head and media technology
- Rotary moving coil actuator with temperature compensation servo
- Faster access times than stepper motor actuator drives
- Fail-safe head landing and shipping zone
- Half the heat dissipation of comparable drives
- Microprocessor control for drive logic and positioner system—includes self-diagnostics

New DC Motor Option

Q2000 8-inch fixed disk drives



Recording Media
- Winchester lubricated magnetic iron oxide coating on a 200mm diameter aluminum substrate
- 5.33 megabytes of data per disk surface
- 512 tracks per disk surface

Read/Write Heads
- Winchester (IBM 3340) type flying heads
- Low mass/low load force
- Reliable contact start/stop operation
- Heads return to a "fail-safe landing zone" during power-off and shipping

Air Filtration System
- Disks and read/write heads fully sealed in clean air chamber
- Recirculating air system with absolute filter
- Absolute breather air filter permits pressure equalization with ambient air without contamination

Rotary Moving Coil Actuator
- Pure torque motor with balanced forces to maximize bearing life
- Simple construction
  - —Ring magnet and two flat-plate magnetic structure
  - —Single-plane moving coil
  - —Two-bearing structure
  - —Two-phase driver electronics
- Statically-balanced structure for high mechanical stability and maximum vibration resistance
- Low power consumption
- Average access time up to 20% faster than stepper motor actuators

Optical Track Position Encoder
- Track positioning resolution better than 40 microinches
- Reliable glass reticle/LED/photodiode technology

Temperature Compensation Servo
- Direct track position feedback from disk surface
- Transparent to controller and host system
- Track location coding embedded between last inter-record gap and index pulse
- Microprocessor-controlled calibration of optical track position reference from servo feedback once each revolution

Specifications

Performance Specifications

	Q2010	Q2020	Q2030	Q2040
Capacity				
Unformatted				
per drive	10.66 Mb	21.33 Mb	32.00 Mb	42.66 Mb
per surface	5.33 Mb	5.33 Mb	5.33 Mb	5.33 Mb
per track	10.40 Kb	10.40 Kb	10.40 Kb	10.40 Kb
Formatted (MFM)				
per drive	8.40 Mb	16.80 Mb	25.20 Mb	33.20 Mb
per surface	4.20 Mb	4.20 Mb	4.20 Mb	4.20 Mb
per track	8.20 Kb	8.20 Kb	8.20 Kb	8.20 Kb
per sector	256 bytes	256 bytes	256 bytes	256 bytes
sectors/track	32	32	32	32
Transfer rate	4.34 Mbits/sec	4.34 Mbits/sec	4.34 Mbits/sec	4.34 Mbits/sec
Access time*				
Track to track	15 ms	15 ms	15 ms	15 ms
Average	55 ms	60 ms	60 ms	65 ms
Maximum	100 ms	100 ms	100 ms	105 ms
Avg. latency	10 ms	10 ms	10 ms	10 ms

Functional Specifications

	Q2010	Q2020	Q2030	Q2040
Rotational speed	3000 RPM	3000 RPM	3000 RPM	3000 RPM
Recording density	6600 bpi	6600 bpi	6600 bpi	6600 bpi
Flux density	6600 fci	6600 fci	6600 fci	6600 fci
Track density	345 tpi	345 tpi	345 tpi	345 tpi
Cylinders	512	512	512	512
Tracks	1024	2048	3072	4096
Read/Write heads	2	4	6	8
Disks	1	2	3	4
Index	1	1	1	1

*Typical at nominal temperature and power

Physical Specifications

Environmental limits
- Ambient temperature = 50° to 115°F (10° to 46°C)
- Relative humidity = 8% to 80%
- Maximum wet bulb = 78° non-condensing

AC power requirements (AC power option only)
- 50/60 Hz ± 0.5 Hz
- 100/115 VAC installations = 90–127V at 1.0A typical
- 200/230 VAC installations = 180–253V at 0.5A typical

DC voltage requirements
- +24 VDC ± 10% 3.0A typical (DC power option only)
- +24 VDC ± 10% 1.25A typical (AC power option only)
- +5 VDC ± 5% 1.0A typical
- −5 VDC ± 5% (−7 to −16 VDC optional) 0.2A typical

Mechanical dimensions
- Height = 4.50 in. (114.3 mm)
- Width = 8.55 in. (217.2 mm)
- Depth = 14.25 in. (362.0 mm)
- Weight = 17 lbs. (7.7 Kg)

Heat dissipation = 235 BTU/hour typical (70 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

Quantum Corporation
Corporate Headquarters: 1804 McCarthy Blvd., Milpitas, CA 95035
(408) 262-1100 TWX 910-338-2203
Eastern Region Sales Office: (603) 893-2672
Western Region Sales Office: (408) 980-8555

004 5-82 20 M

QUANTUM

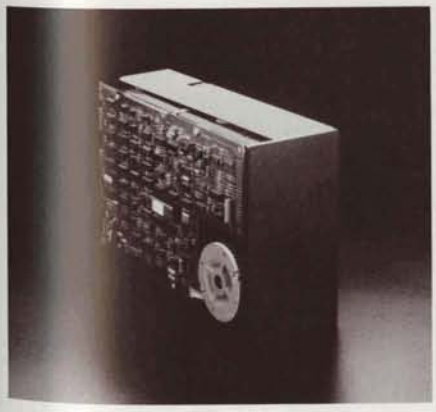
Quantum Q2080™ low-cost, 85 megabyte, fixed disk drive.

The Quantum Q2080™ is the latest addition to the Q2000™ family of low-cost, 8-inch fixed disk drives, and is fully compatible with the other 10-, 20-, 30- and 40-megabyte Q2000 products available.

The Q2080 has a capacity of 85 megabytes in an 8-inch floppy-sized package, and has an average access time of 40 milliseconds.

Like the other members of the Q2000 family, the Q2080 uses the industry standard interface to take advantage of the wide availability of low-cost controllers and multiple sources of supply.

All Q2000 Series products are available in either an AC power version or a DC power version.



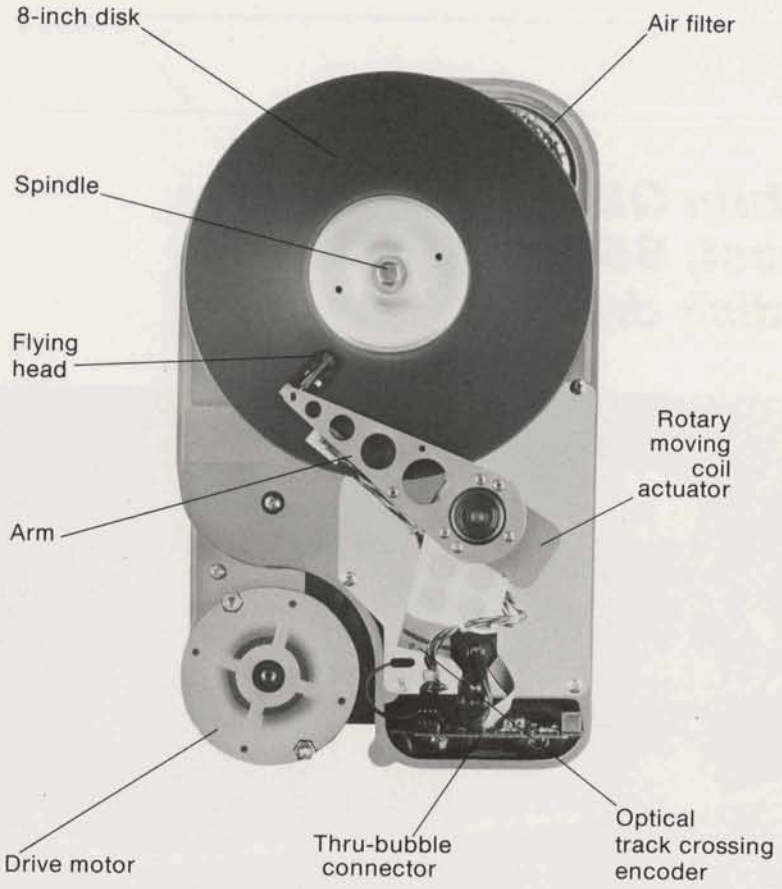
Mounting requirements are fully compatible with industry-standard 8-inch floppy drives. Drive control and data signals use the same pin assignments as compatible floppy drives, allowing daisy-chaining of fixed and floppy drives.

Key Features

- 85.45 megabyte (unformatted) storage capacity
- Full interface and format compatibility with the current industry-standard 8-inch Winchester drives
- Physical dimensions and mounting holes identical to those of standard 8-inch floppy disk drives
- Lowest-cost 85 Mb fixed disk drives
- 4.34 megabits per second transfer rate
- Available in AC or DC power options
- Proven Winchester head and media technology
- Rotary moving coil actuator
- 40 millisecond average access time
- Fail-safe head landing and shipping zone
- AIRLOCK™—automatic shipping lock*
- Microprocessor control for drive logic and positioner system—includes self-diagnostics

85 Mb capacity/40 ms average access time

Q2080 8-inch fixed disk drive



Recording Media
- Winchester lubricated magnetic oxide coating on a 200mm diameter aluminum substrate
- 12.21 megabytes of data per disk surface
- 1172 tracks per disk surface

Read/Write Heads
- Winchester (IBM 3340) type flying heads
- Low mass/low load force
- Reliable contact start/stop operation
- Heads return to a "fail-safe landing zone" during power-off and shipping

Air Filtration System
- Disks and read/write heads fully sealed in clean air chamber
- Recirculating air system with absolute filter
- Absolute breather air filter permits pressure equalization with ambient air without contamination

Rotary Moving Coil Actuator
- Pure torque motor with balanced forces to maximize bearing life
- Simple construction
  - —Dual ring magnet/return plate magnetic structure
  - —Single-plane moving coil
  - —Two-bearing structure
- Statically-balanced structure for high mechanical stability and maximum vibration resistance

Optical Track Crossing Encoder
- Reliable glass reticle/LED/photodiode technology

Closed Loop Servo System
- Direct track position feedback from disk surface
- Transparent to controller and host system
- Microprocessor-controlled servo system

Specifications

Performance Specifications

Capacity	85.45 Mb
Unformatted	
per drive	85.45 Mb
per surface	12.21 Mb
per track	10.42 kb
Formatted (MFM)	
per drive	67.41 Mb
per surface	9.60 Mb
per track	8.20 kb
per sector	256 Bytes
sectors/track	32
Transfer rate	4.34 Mbits/sec.
Access time*	
Track to track	10 ms
Average	40 ms
Full stroke	75 ms
Avg. latency	10.0 ms

Functional Specifications

Rotational speed	3000 RPM
Recording density	6600 bpi
Flux density	6600 fci
Track density	789 tpi
Cylinders	1172
Tracks	8204
Data heads	7
Servo heads	1
Disks	4
Index	1

*Access time values are typical at nominal temperature and voltage.

Physical Specifications

Environmental limits
- Ambient temperature = 50° to 115°F (10° to 46°C)
- Relative humidity = 8% to 80%
- Maximum wet bulb = 78° non-condensing

AC power requirements (AC power option only)
- 50/60 Hz ±0.5 Hz
- 100/115 VAC installations = 90-127V at 1.0 A typical
- 200/230 VAC installations = 180-253V at 0.5 A typical

DC voltage requirements
- +24 VDC ±10% 3.75 A typical (DC power option only)
- +24 VDC ±10% 2.0 A typical (AC power option only)
- +5 VDC ± 5% 1.0 A typical
- −5 VDC ± 5% (−7 to −16 VDC optional) 0.2 A typical

Mechanical dimensions
- Height = 4.50 in. (114.3 mm)
- Width = 8.55 in. (217.2 mm)
- Depth = 14.25 in. (362.0 mm)
- Weight = 17 lbs. (7.7 kg)

Heat dissipation = 320 BTU/hour typical (95 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

*Patent pending safety latch feature protecting Quantum disk drives.

"Q2000, Q2080 and AIRLOCK are trademarks of Quantum Corporation.

QUANTUM

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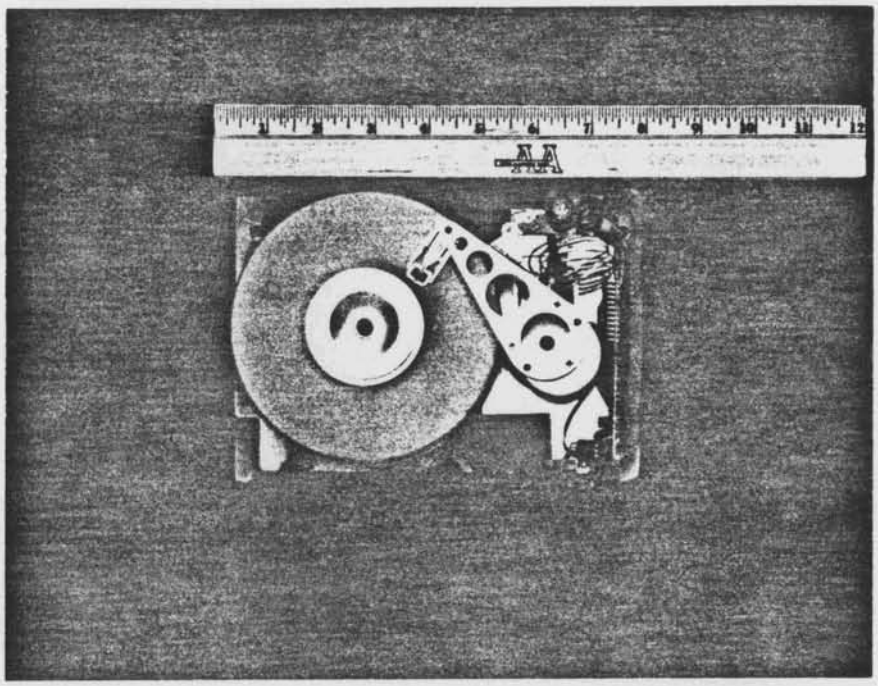
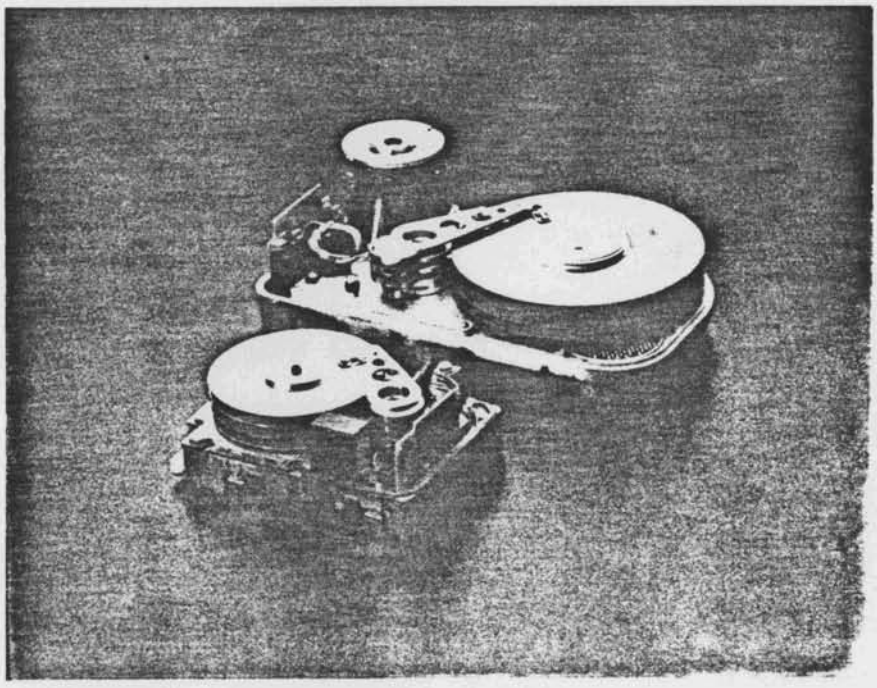
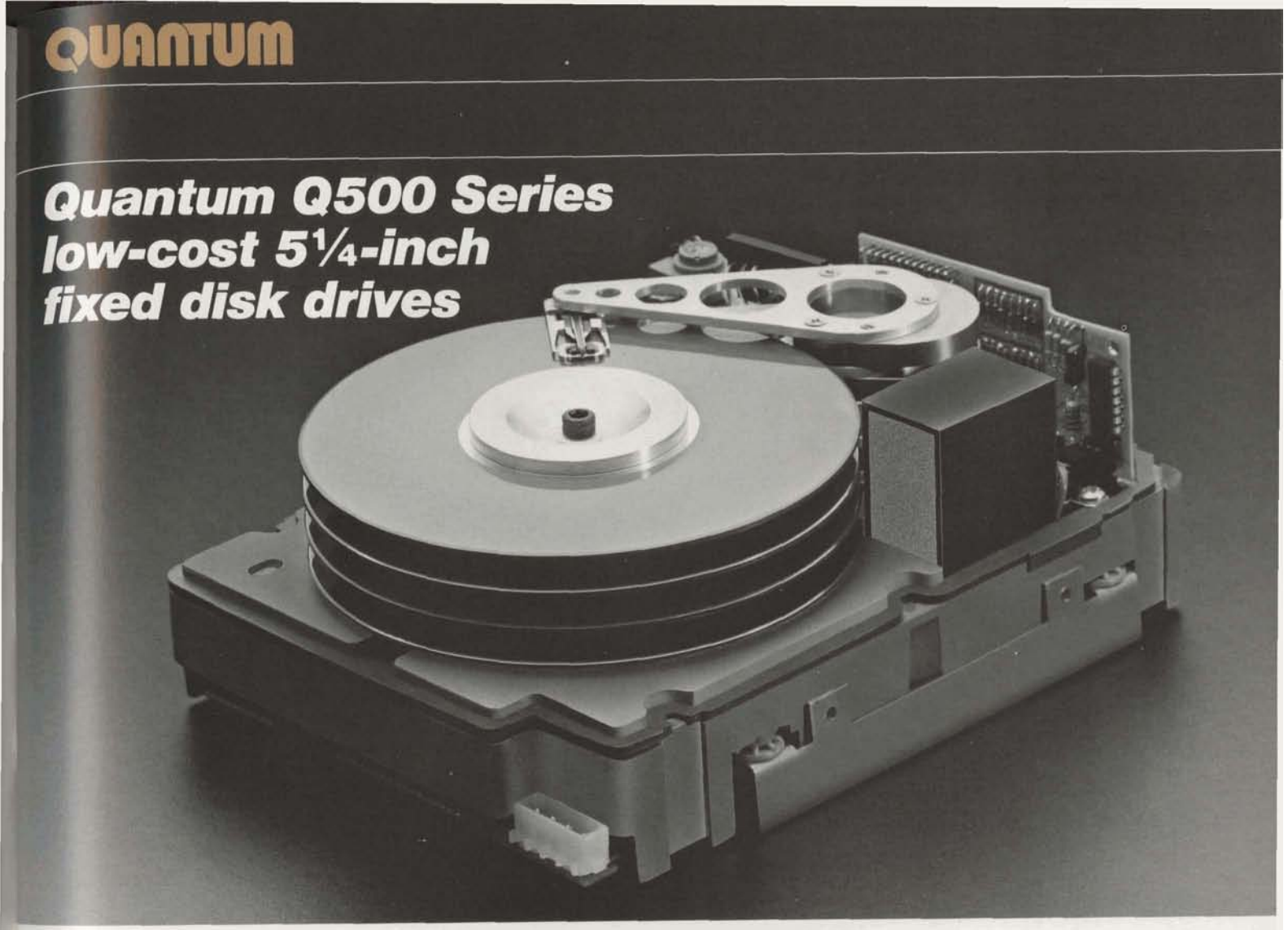




QUANTUM

Quantum Q500 Series low-cost 5¼-inch fixed disk drives



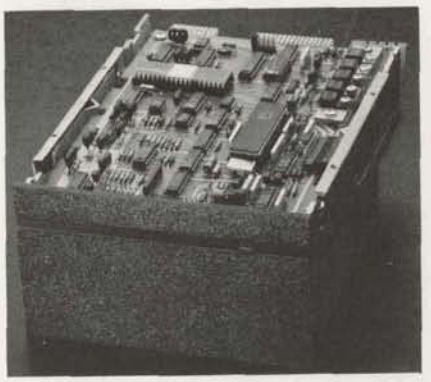
The latest addition to the Quantum family is the Q500™ series—5¼-inch fixed disk drives with 20-, 30- and 40-megabyte capacities. These reliable Winchesters provide OEMs a cost-effective upgrade from floppy or lower-capacity Winchester disk drives. They fit in 5¼-inch disk drive envelopes and are fully compatible with Winchester industry standards for electrical interface, power requirements and mounting.

The Q500 series is well suited for multi-user systems. The head positioning system, evolved from the actuator used in Quantum's Q2000™ 8-inch disk drives, enables the Q500 to achieve higher capacity and much faster access times than other low-cost disk drives. The Q500 also incorporates the reliability, simplicity and manufacturability inherent in the industry-leading Q2000 line.

Instead of a stepper motor actuator, the Q500 has a rotary moving coil actuator. This approach provides twice the track density and per-disk capacity without increasing cost.

Key Features:

- Affordably-priced 5¼-inch fixed disk drives in the 20- to 40-megabyte capacity range
- 21.33, 31.99 and 42.66 megabyte (unformatted) storage capacities
- Full interface, format and power supply dissipation compatibility with Seagate ST506 and ST412
- Physical dimensions and mounting holes identical to ST506/ST412 and standard 5¼-inch floppy disk drives
- 5.0 megabits per second transfer rate
- Proven Winchester head and media technology
- Rotary moving coil actuator with temperature compensation servo



- Faster access time than stepper motor drives
- Fail-safe head landing zone for shipping and storage
- Automatic mechanical shipping lock

Recording Media
- Standard Winchester lubricated magnetic iron oxide coating on a 130 mm diameter aluminum substrate
- 5.33 megabytes of data per disk surface
- 2048, 3072 and 4096 tracks per disk surface

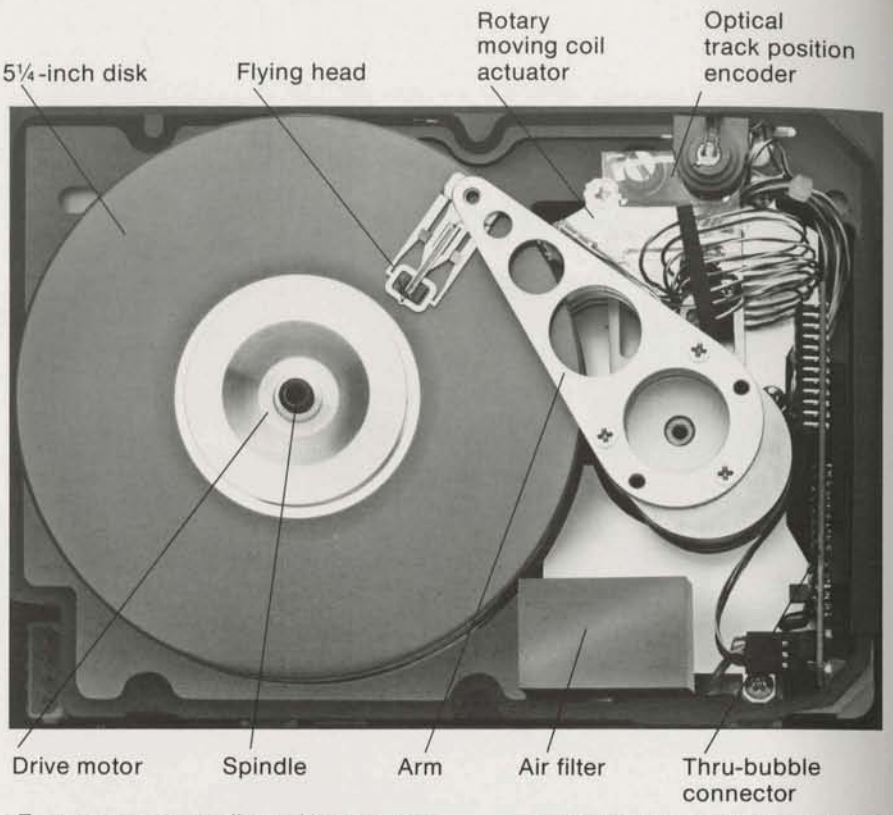
Read/Write Heads
- Manganese zinc Winchester (IBM 3340) heads
- Low mass/low load force
- Reliable contact start/stop operation
- Heads return to a "fail-safe landing zone" during power-off and shipping

Air Filtration System
- Disks and read/write heads fully sealed in clean air chamber
- Recirculating air system with internal filter
- Absolute breather filter permits pressure equalization without contamination

Rotary Moving Coil Actuator
- Pure torque motor with balanced forces to maximize bearing life
- Simple construction
  - —Ring magnet segments with two flat-plate magnetic structure
  - —Single-plane moving coils
  - —Two-bearing structure
- Statically-balanced structure for high mechanical stability and maximum vibration resistance
- Low power consumption
- Average access time half that of stepper motors.

Optical Track Position Encoder
- Provides lowest cost, reliable servo system
- Reliable glass reticle/LED/photodiode technology

Temperature Compensation Servo
- Direct track position feedback from disk surface



- Transparent to controller and host system
- Track location coding embedded between last inter-record gap and index pulse
  - —Data rate, track capacity and unrestricted format the same as ST506/ST412
  - —ST506/ST412 compatibility retained by increasing flux reversal density and reducing rotational speed
- Microprocessor-controlled optical servo system is updated once per revolution from the disk

Specifications

Performance Specifications

	Q520	Q530	Q540
Capacity			
Unformatted			
per drive	21.33 Mb	31.99 Mb	42.66 Mb
per surface	5.22 Mb	5.33 Mb	5.33 Mb
per track	10,416 Bytes	10,416 Bytes	10,416 Bytes
Formatted (MFM)			
per drive	16.80 Mb	25.20 Mb	33.20 Mb
per surface	4.20 Mb	4.20 Mb	4.20 Mb
per track	8192 Bytes	8192 Bytes	8192 Bytes
per sector	256 Bytes	256 Bytes	256 Bytes
sector/track	32	32	32
Transfer rate	5.0 Mbits/sec.	5.0 Mbits/sec.	5.0 Mbits/sec.
Access time*			
Track-track	10 ms	10 ms	10 ms
Average	45 ms	45 ms	45 ms
Maximum	95 ms	95 ms	95 ms
Avg. latency	8.5 ms	8.5 ms	8.5 ms

Functional Specifications

Rotational speed	3529 RPM ± 1%	3529 RPM ± 1%	3529 RPM ± 1%
Recording density	9200 bpi	9200 bpi	9200 bpi
Flux density	9200 fci	9200 fci	9200 fci
Track density	591 tpi	591 tpi	591 tpi
Cylinders	512	512	512
Tracks	2048	3072	4096
Read/Write Heads	4	6	8
Disks	2	3	4
Index	1	1	1

*Access time values are typical at nominal temperature and voltage and at minimum step pulse.

Physical Specifications

Environmental limits
- Ambient temperature = 50° to 115°F (10° to 46°C)
- Relative humidity = 8% to 80%
- Maximum wet bulb = 78° non-condensing

DC voltage requirements
- + 12V ± 10%, 1.8 A typical, 4.5 A maximum
- + 5V ± 10%, .7 A typical, 1.0 A maximum
- + 12V/ + 5V Maximum Ripple = 50 mV P-P

Mechanical dimensions
- Height = 3.25 inches
- Width = 5.75 inches
- Depth = 8.00 inches
- Weight = 6 lbs. (2.7 kg.)

Heat dissipation = 25 watts typical

Reliability Specifications

MTBF: 10,000 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

Quantum Corporation
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QUANTUM STRATEGY MEETING

Red Lion Inn-San Jose
2050 Gateway Place
San Jose, California

(408) 279-0600

A G E N D A

Thursday, October 21

6:00 - 8:00 P.M.	Dinner (San Martin Room)
8:00 - 10:00 P.M.	Objectives - Jim Patterson Agenda - John Noon Introduction - All Meeting Expectations - All

Friday, October 22

(San Martin Room)

8:30 - 10:00 A.M.	Basic assumptions about Corporate Environment - staff - Steve Wheelwright
10:00 - 10:20 A.M.	Break
10:20 - 12:30 P.M.	Continuation of morning session.
12:30 - 1:30 P.M.	Lunch (San Juan Room)
1:30 - 3:30 P.M.	Corporate Objectives - Jim Patterson - Steve Wheelwright Review and Discussion - All
3:30 - 4:00 P.M.	Break
4:00 - 6:30 P.M.	Areas of Emphasis: Critique and Develop - All
7:00 - 8:30 P.M.	Dinner (San Simeon Room)
8:30 - 10:30 P.M.	Quantum Fantasy - All

Saturday, October 23	(San Carlos Room)
9:00 - 10:30 A.M.	Critical Issue - All
10:30 - 10:45 A.M.	Break
10:45 - 12:30 P.M.	Quantum Management Approach - All
12:30 - 1:30 P.M.	Lunch (San Juan Room)
1:30 - 3:00 P.M.	Quantum Management Approach (continued)
3:00 - 3:15 P.M.	Break
3:15 - 4:30 P.M.	Critique Next Steps
6:30 - 7:30 P.M.	Cocktails (Monterey-Carmel Room)
7:30 P.M.	Dinner (Monterey-Carmel Room)

Success Profile

	Quantum 6 mos. Ended 10/2/82	Profile of a Successful OEM Company
Sales	100%	100%
Gross Profit	46	40-45
Research, Development and Engineering	8	6-8
Marketing	7	6-8
General and Administrative	3	3-5
Income Before Tax	28	20-25
Net Income Before Extraordinary Credit	16	10-12

18A-65 COMPUTERWORLD
WEEKLY 125,000

$$$

uantum Corp. has filed a registon statement with the Securities Exchange Commission for its al public offering of 1.7 million es of common stock, of which 0,000 are being offered by the pany and 450,000 shares by cershareholders. The offering is exed to be made in December and be managed by Morgan, Stanley o., Inc. and Robertson, Colman, hens & Woodman.

25B-14 ELECTRONIC NEWS
WEEKLY 74,000

Quantum Slates Stock Offering

MILPITAS, Calif. — Quantum Corp. plans to offer 1.25 million common shares, at a price of between $15 and $17, in an initial public offering, the company said.

In its registration statement with the Securities and Exchange Commission, the maker of 8-inch Winchester disk drives said its largest single OEM customer is Wang Laboratories, which takes about 20 per cent of Quantum's drives. Quantum identified other large customers through the first half of 1982 as Altos Computer Systems, 15 per cent, and Convergent Technologies, 14 per cent.

Quantum also confirmed earlier reports it has signed Nixdorf Computer Corp. as an OEM customer and said Nixdorf has a license to manufacture Quantum-designed disk drives for sale only with Nixdorf systems. Other key customers identified that don't account for over 10 per cent of Quantum's shipments were Industrial Micro Systems, Inc. and Vector Graphics, Inc. Quantum said in fiscal 1982, ended March 31, its top customers were Altos Computer Systems, 21 per cent; Wang Labs, 13 per cent, and Data Systems Design, Inc., 12 per cent. Quantum said it had shipped about 20,000 drives as of Oct. 2, to about 200 customers.

Quantum officials would not say how many drives Nixdorf contracted to buy or how long its agreement with Nixdorf will last. Quantum signed with Nixdorf in early 1981.

Quantum estimated it is the Number Two volume manufacturer of 8-inch Winchester disk drives for the OEM market, but claimed it is the leader in OEM 8-inch drives of 20 megabytes or greater.

Quantum, which expects to begin shipping a 5¼-inch Winchester drive in volume in June, 1983, said it had sales of $13.656 million and earnings of $186,000, or 3 cents a share, for the year ended March 31.

In fiscal 1981, Quantum had no sales and a loss of $1.769 million. For the latest 6 months ended Oct. 2, sales were $18.608 million, from which it netted $3.71 million, or 49 cents a share.

Following the offering, which is expected to take place next month, Quantum's largest shareholder with 14.4 per cent will be venture capital company Kleiner, Perkins, Caufield & Byers, followed by Merrill, Pckard, Anderson & Eyre I with a holding of 11.6 per cent; Mayfield III & IV with 9.8 per cent; Genstar Pacific Corp., with 6.4 per cent; and James L. Patterson, with 2.8 per cent.

12A-126 WALL STREET JOURNAL,
EASTERN EDITION
DAILY 1,800,000

* * *

Quantum Files Stock Offering

MILPITAS, Calif. — Quantum Corp. said it filed with the Securities and Exchange Commission an initial public offering of 1.7 million common shares.

Proceeds will be used for capital outlays and general corporate purposes, the maker of computer disk drives said.

The offering is scheduled for next month. Managers are Morgan Stanley & Co. and Robertson, Colman, Stephens & Woodman.

12A-37 DAILY COMMERCIAL NEWS
DAILY 7,200

Quantum Corp's initial offering

Quantum Corp. announced Tuesday it has filed registration statement with the Securities and Exchange Commission for its initial public offering of 1 million shares of common stock of which 1,250,0 shares are offered by the company and 450,000 shares b certain selling shareholders.

The net proceeds to Quantum from the financing wi be used for capital expenditures and working capit purposes.

NEW ISSUES™

The Investor's Guide to Initial Public Offerings

Norman G. Fosback, Editor • 3471 North Federal Highway, Fort Lauderdale, Florida 33306 • Glen King Parker, Publisher

ArgoSystems Tops November Recommendations

Issue No. 51 November 24, 1982

ACTION LINE NUMBER: SEE PAGE 7

Updated at 6 p.m. EDT Fridays with all recommendations.
Backups: 305-564-5779, 305-564-5782 and 305-564-5799

Hot Issue: IMAGIC

IMAGIC, a leading producer of home video game cartridges, will offer 2,700,000 shares at an *indicated* $15 to $17 (but more likely $20) in mid December. Underwriters Merrill Lynch, Hambrecht & Quist, and Alex. Brown & Sons will look forward to an easy sell-out. This will be a hot offering that will command a premium, so purchase at the initial offering price is recommended.

IMAGIC shipped its first video game cartridges last March. In the succeeding six months, it netted over $6 million after taxes. Not bad for a company founded last year with a mere $2 million investment, eh?

IMAGIC – 981 University Ave., Los Gatos, CA 95030; (408) 399-2200. Offering of 2,700,000 common shares @$15-$17 per share; 2,000,000 shares (74%) by the company and balance by existing stockholders. Managing Underwriters: Merrill Lynch White Weld, One Liberty Plaza, 165 Broadway, NY 10080; (212) 637-7455; and Hambrecht & Quist, 235 Montgomery St., San Francisco, CA 94104; (415) 986-5500. After the offering, 16,016,000 shares will be outstanding and book value will equal $2.33 a share. Six month revenues equal $2.18 a share. 154 employees. No dividend. Proposed symbol: IMGC.

Quarter Ended	Revenues	Net Income	Prof. Marg.	Earn./Shr.
Mar. 31, 1982	$3,925,000	$ 477,000	12.2%	$ .04
June 30, 1982	13,081,000	2,236,000	17.1%	.16
Sept. 30, 1982	21,869,000	3,872,000	17.7%	.27*

(*$.24 pro forma; to reflect shares to be sold in current offering.)

IMAGIC is the leading independent producer of home entertainment software for video game systems and home computers made by Atari and Mattel's Intellivision. It will soon release software for the Odyssey 2 and Commodore systems. IMAGIC's major claim to fame so far is its "Demon Attack" game, which garnered 1982 Game of the Year honors. To date, IMAGIC has relied largely on word-of-mouth advertising, but recently initiated a media program that will impact upon short term earnings growth.

A game cartridge consists of little more than a semiconductor "chip," a plastic case and a fancy package. The game program on the chip is what makes the package worth $30 or more.

[Continued on Page 2]

ARGOSYSTEMS is a military contractor that is emerging from a period of moderate growth to one of exploding growth. The company's initial public stock offering, scheduled for early next month, consists of 606,390 shares between $16 and $18 per share. We recommend purchase.

The Falklands war highlighted the importance of sophisticated electronic reconnaissance, radar and communications systems. The South Atlantic confrontation proved that in virtually any conflict short of a full-scale nuclear clash, the side with the best electronics will probably be the side that will win. (And in a nuclear conflict, the question of who "wins" and who "loses" may be academic.)

ArgoSystems manufactures products that are used to detect radar signals in what the cognoscenti call a "crowded signal environment" –i.e., a lot of planes and ships shooting at one another. It also performs studies related to electronic reconnaissance and signal processing. Its systems are presently employed in ships, submarines, control aircraft, and ground installations. A good example of ArgoSystems' products is its Phoenix II system, currently in production for several navies. The Phoenix II is designed for shipboard, submarine and airborne electronic warfare. It consists of a direction finding antenna assembly, receivers covering different portions of the radar spectrum, signal processing and control units, displays and other interfaces. It is capable of providing fully automated threat warnings and direction finding functions. A fully configured system is marketed in excess of $1,000,000.

Our table of historical financial information shows that ArgoSystems' revenues

[Continued on Page 6]

WHAT TO DO NOW

The soaring stock market has produced a plethora of high quality new issues. As always, some are more attractive from a price-value standpoint than others. Our purchase recommendations are **ArgoSystems** (see above), **IMAGIC** (at left), **Quantum** (Page 2), **Hogan Systems** (Page 3), **Centocor** (Page 4), and **Par Technology** (Page 5). Our Prior Recommendations list (Page 7) now shows an average gain of nearly 100%, but there are still a few stocks worth considering for purchase now, and they are marked "Buy."

Buy Quantum – 8" Disk Drive Leader

QUANTUM CORPORATION is a disk drive manufacturer that may be on the verge of explosive growth. It is offering 1,700,000 shares to the public next month between $15 and $17. We advise purchase of this high potential, high risk offering.

That the world is in the midst of a computer revolution is obvious to everyone. That one area of the computer industry – computer disk drives to manage secondary data storage – is in the midst of its own technological boom, is becoming ever more obvious to investors. Quantum will be the newest investment medium in this area. In the late 1970s the firm received abundant venture capital financing as it developed its disk drive systems. At least seven venture capital firms are presently major stockholders and all are retaining significant portions of their equity interests even while selling small chunks to the public in this offering.

Quantum

The central memory systems of even the largest computers are relatively limited, capable of storing just a few million characters of information. But with the accelerating uses of computers for storing and retrieving extensive data bases, the need for instantly accessible supplementary memory is an increasingly important feature of all computer systems. Magnetic disk drives serve that need. Presently three sizes of drives are on the market – 14-inch, 8-inch and 5-1/4-inch. All are manufactured with a variety of data storage capacities. Even though Quantum is still a very young company, it is the second largest manufacturer of 8-inch drives, second only to Shugart, a Xerox subsidiary. In the higher capacity 8-inch drives – that is, those capable of handling more than 20 million characters – Quantum claims to be the largest independent supplier to the computer industry.

Quantum is now expanding its line of 8-inch disk drives and is developing a new line of the smaller 5-1/4-inch drives. The former are used in a broad range of word processing, small business computer, and computer terminal systems. The latter stand to become increasingly popular in smaller desk-top and portable computer systems. The company hopes to commence volume production of the 5-1/4-inch drives by mid 1983.

Competition in this industry is intense and the risk of technological obsolescence is high. Companies such as Quantum scramble to stay abreast of the leading edge of the technology. Within five years, this company *could* be a multi-hundred million dollar giant. Alternatively, it could be spinning on its disk axis, little further progressed than it is today. We believe the chances of success are sufficiently high to compel purchase of this offering for aggressive portfolios.

All of Quantum's disk drives are sold to computer manufacturers that in turn incorporate them in their larger data processing systems. Principal customers include Altos and Convergent Technologies, both of which made highly successful public stock offerings of their own recently. Other large customers include Wang and Data System Design. Quantum also has recently entered into agreements with Nixdorf, Industrial Micro Systems and Vector Graphics. Approximately $5 million of the company's share of offering proceeds will be used to purchase capital equipment to increase manufacturing capacity. In the nine months ended October 2, Quantum netted 60 cents a share. Based on an 80 cent per share annual earnings rate, that places the $15 to $17 stock offering at 19 to 21 times earnings, a multiple we view as eminently reasonable in today's market in view of Quantum's exciting growth potential.

QUANTUM CORPORATION – 1804 McCarthy Blvd., Milpitas, CA 95035; (408) 262-1100. Offering of 1,700,000 common shares @$15-$17 per share; 1,250,000 shares (73%) by the company and balance by existing stockholders. Managing Underwriters: Morgan Stanley, 1251 Ave. of the Americas, NY 10020; (212) 974-4000; and Robertson, Colman, Stephens, Woodman, 100 California St., San Francisco, CA 94111; (415) 781-9700. After the offering, 8,721,372 shares will be outstanding and book value will equal $4.05 a share. Six month revenues equal $2.13 a share. 263 employees. No dividend. Proposed symbol: QNTM.

3 Mo. Ended	Revenues	Net Income	Prof. Marg.	Earn./Sh.*
June 27, 1981	$ 386,000	$ (875,000)	nil	$ (.10)
Sept. 26, 1981	2,109,000	(157,000)	nil	(.02)
Dec. 26, 1981	3,261,000	(358,000)	nil	(.04)
Mar. 31, 1982	7,900,000	1,576,000	19.9%	.18
July 3, 1982	8,658,000	1,703,000	19.7%	.20
Oct. 2, 1982	9,950,000	1,193,000	14.3%	.14

(*pro forma to reflect shares to be sold in current offering.)

IMAGIC

[Continued from Page 1] Just like a record company that needs new hits every year, video game companies need a constant flow of hit games. The stars of this industry are the designers who conceive and develop the games. Just three designers are responsible for six games which have so far accounted for 93% of IMAGIC's volume.

Video game cartridges are clearly remaking the toy industry. As the first video game company to go public, IMAGIC may well be the hottest new issue of the year.

However, video games may be high technology hula-hoops – a here today and gone tomorrow fad. Our advice is to buy all you can get at the initial offering price but use the post-offering price bulge to take profits, and scale your holdings back to about the same dollar value as your average new issue holding. We would not pay a premium to buy this stock. A handful of ex-Atari and Mattel executives were able to start IMAGIC and gain almost instant wealth. So, too, will other executives, including some of IMAGIC's own staff, choose to go the independent route in coming months and years. There is great ease of entry in this industry, as in all phases of computer software, and anyone with a better idea can set up their own company to capitalize on it. Accordingly, IMAGIC's success may well prove to be ephemeral and we do not think the issue is particularly undervalued at well over 20 times the current rate of earnings.

PRELIMINARY PROSPECTUS
Issued November 9, 1982

1,700,000 Shares

Quantum Corporation

COMMON STOCK

Of the 1,700,000 shares of Common Stock offered hereby, 1,250,000 shares are being sold by the Company and 450,000 outstanding shares are being sold by the Selling Shareholders as set forth under "Selling Shareholders". The Company will not receive any part of the proceeds from the sale of shares by the Selling Shareholders. Prior to this offering there has been no public market for the Common Stock. It is currently anticipated that the initial public offering price will be in the range of $15 to $17 per share. See "Underwriters" for a discussion of the factors to be considered in determining such offering price.

THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SECURITIES AND EXCHANGE COMMISSION NOR HAS THE COMMISSION PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

PRICE $ A SHARE

	Price to Public	Underwriting Discounts and Commissions (1)	Proceeds to Company (2)	Proceeds to Selling Shareholders (2)
Per Share	$	$	$	$
Total (3)	$	$	$	$

(1) See "Underwriters" herein for information on indemnification provided by the Company and the Selling Shareholders.

(2) Before deduction of expenses payable by the Company estimated at $ and by certain of the Selling Shareholders estimated at $.

(3) Two Selling Shareholders have granted to the Underwriters an option, exercisable within 30 days of the date hereof, to purchase up to 170,000 additional shares at the price to public less underwriting discounts and commissions for the purpose of covering over-allotments, if any. If the Underwriters exercise such option in full, the total price to public, underwriting discounts and commissions and proceeds to the Selling Shareholders will be $, $ and $, respectively. See "Underwriters".

The shares are offered, subject to prior sale, when, as and if accepted by the Underwriters named herein and subject to approval of certain legal matters by Davis Polk & Wardwell, counsel for the Underwriters. It is expected that delivery of the certificates for the shares will be made on or about December , 1982, at the office of Morgan Stanley & Co. Incorporated, 55 Water Street, New York, N.Y., against payment therefor in Clearing House Funds.

MORGAN STANLEY & CO.
Incorporated

ROBERTSON, COLMAN, STEPHENS & WOODMAN

, 1982

PROSPECTUS

2,500,000 Shares

Quantum Corporation

COMMON STOCK

Of the 2,500,000 shares of Common Stock offered hereby, 1,423,000 shares are being sold by the Company and 1,077,000 outstanding shares are being sold by the Selling Shareholders as set forth under "Selling Shareholders". The Company will not receive any part of the proceeds from the sale of shares by the Selling Shareholders. Prior to this offering there has been no public market for the Common Stock. See "Underwriters" for a discussion of the factors considered in determining the offering price.

THESE SECURITIES HAVE NOT BEEN APPROVED OR DISAPPROVED BY THE SECURITIES AND EXCHANGE COMMISSION NOR HAS THE COMMISSION PASSED UPON THE ACCURACY OR ADEQUACY OF THIS PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

PRICE $20½ A SHARE

	Price to Public	Underwriting Discounts and Commissions (1)	Proceeds to Company (2)	Proceeds to Selling Shareholders (2)
Per Share	*$20.50*	*$1.44*	*$19.06*	*$19.06*
Total (3)	*$51,250,000*	*$3,600,000*	*$27,122,380*	*$20,527,620*

(1) See "Underwriters" herein for information on indemnification provided by the Company and the Selling Shareholders.

(2) Before deduction of expenses payable by the Company estimated at $390,015 and by certain of the Selling Shareholders estimated at $14,985.

(3) The Company has granted to the Underwriters an option, exercisable within 30 days of the date hereof, to purchase up to 250,000 additional shares at the price to public less underwriting discounts and commissions for the purpose of covering over-allotments, if any. If the Underwriters exercise such option in full, the total price to public, underwriting discounts and commissions and proceeds to the Company will be $56,375,000, $3,960,000 and $31,887,380, respectively. See "Underwriters".

The shares are offered, subject to prior sale, when, as and if accepted by the Underwriters named herein and subject to approval of certain legal matters by Davis Polk & Wardwell, counsel for the Underwriters. It is expected that delivery of the certificates for the shares will be made on or about December 20, 1982, at the office of Morgan Stanley & Co. Incorporated, 55 Water Street, New York, N.Y., against payment therefor.

MORGAN STANLEY & CO.
Incorporated

ROBERTSON, COLMAN, STEPHENS & WOODMAN

December 10, 1982

WSJ 12/13/82

This announcement is neither an offer to sell nor a solicitation of an offer to buy any of these Securities. The offer is made only by the Prospectus.

2,500,000 Shares

Quantum Corporation

Common Stock

Price $20½ a Share

Copies of the Prospectus may be obtained in any State from only such of the undersigned as may legally offer these Securities in compliance with the securities laws of such State.

MORGAN STANLEY & CO. Incorporated — ROBERTSON, COLMAN, STEPHENS & WOODMAN

BEAR, STEARNS & CO. — THE FIRST BOSTON CORPORATION

BLYTH EASTMAN PAINE WEBBER Incorporated — DILLON, READ & CO. INC.

DREXEL BURNHAM LAMBERT Incorporated — GOLDMAN, SACHS & CO. — E. F. HUTTON & COMPANY INC.

KIDDER, PEABODY & CO. Incorporated — LAZARD FRERES & CO. — LEHMAN BROTHERS KUHN LOEB Incorporated

MERRILL LYNCH, WHITE WELD CAPITAL MARKETS GROUP Merrill Lynch, Pierce, Fenner & Smith Incorporated — PRUDENTIAL-BACHE Securities

L. F. ROTHSCHILD, UNTERBERG, TOWBIN — SALOMON BROTHERS INC

SHEARSON/AMERICAN EXPRESS INC. — SMITH BARNEY, HARRIS UPHAM & CO. Incorporated

WARBURG PARIBAS BECKER Incorporated — WERTHEIM & CO., INC.

DEAN WITTER REYNOLDS INC. — HAMBRECHT & QUIST

BATEMAN EICHLER, HILL RICHARDS Incorporated — MONTGOMERY SECURITIES — BOETTCHER & COMPANY

CROWELL, WEEDON & CO. — ROWE & PITMAN, INC. — SUTRO & CO. Incorporated

December 13, 1982