Dear Juan & Alice, I'm now facing a problem that I never dreamed I'd be writing to you about. It's my Lisa. Should I pay for it now, or should I send it back and wait for the Macintosh [sic] in the spring?  
-- October 17, 1983

Dear Juan & Alice, My problem is solved. I keep (and upgrade) the Lisa, and buy the Mac!  
-- January 24, 1984

Well before the formal announcement of Apple's Macintosh, scheduled for tomorrow, Apple Computer has carefully molded public opinion to a consensus that the system is a nifty one. Molded or not, that opinion is valid: Mac benefits from the $50 million spent and the many mistakes made on Lisa; it's high-resolution, low-priced, friendly, fast, semi-portable; it comes with elegant boxes and brochures decorated with Picasso-compatible drawings. Its friendly, graphics-oriented interface, to quote Apple quoting Lotus' Mitch Kapor, will "change the way people think about computers." All it lacks is the ability to run PC software.

What is the purpose of a nifty machine like the Mac? It's not to attract buyers by itself, but rather to attract enough support -- from press and pundits like ourselves, from dealers, from third-party software and add-on vendors -- to create an entire package: system, applications, peripherals, image, and the customer's certainty that he's making the right choice. And it's to overcome those nagging doubts about the IBM PC.

In one sense, all Apple's efforts must now be devoted to overcoming that one small objection, for it alone is tempering the enthusiasm of Mac's would-be supporters. Without that one little problem the Macintosh would surely be the popular and commercial smash of the year. It's the hump that must be surmounted if anyone is to sell the machine, anyone is to write software for it, anyone is to buy it.

MacPromise. The first line of defense is the promise of some kind of PC connectivity -- not compatibility. Apple is vague on this score, announcing IBM mainframe access capabilities and AppleBus communications but no MS-DOS options. When pressed, however, Apple affirms that the Lisa will be able to run (reformatted) PC software with the help of an add-in card; such a card won't fit in the Macintosh. Still, there's always Rana Systems, which...
makes an add-on box that lets the Apple //e run MS-DOS software. Apple endorses the Rana add-on but doesn't actually distribute it. We expect there will eventually be a similar arrangement for the Mac.

The truth is, an MS-DOS option doesn't need to be much more than a promise, albeit a convincing one, because anyone who would actually use a Mac to run PC software is probably the kind of guy you wouldn't want for a customer anyway. But that promise wears down the first objection: The Mac will be able to run IBM software, so why don't you try it and buy it? You can always get the PC option later. However, the mainframe access and the networking capabilities will be missed if they don't arrive on schedule this year.

Meanwhile, as discussed on page 8, IBM has considerably muddied the waters with its announcement of UNIX for the PC: If IBM is moving beyond MS-DOS, perhaps it's not the eternal standard after all. While many users will now simply adopt UNIX, others may decide to reconsider altogether. In this light, Macintosh stacks up at the top for its price class. The trick is to get people to focus on what they're getting, not on what they're missing.

MacAttack

Having assembled a reasonable defense, Apple can now launch a credible offense: The system's own benefits, and its position as the entry machine to the Apple 32 (a.k.a. "SuperMicro" Family, which consists of Macintosh plus a variety of enhanced and price-reduced Lisas which can run Mac software as well as their own.

Mac's allure. What makes Macintosh so enchanting? While the PCjr was assembled -- IBM logo and all -- as an artifact to attract the kind of third-party support we mentioned on page 1, Macintosh was sweated and loved into creation for the same purpose, and it shows. Saying that Mac has a high-resolution screen and 3½-inch disk drive and cpu all in one box and weighs 17 pounds is like saying that Paul Newman, for example, has blue eyes, a heart and a torso and weighs 170(?). Newman's eyes...Well, Mac's crisp, clear screen opens to the user a world of capabilities that are more typically obscured by inscrutable operating systems, cryptic commands, and discouraging error messages. The interface is friendly, the applications can trade data, and you can take it home and use it. Because the operating system is built into 64K of ROM, applications and user data can make use of much of the 128K of RAM (see page 6), although generally only one application can run at a time.

We saw the Mac several weeks ago and fell in love, so much so that we brought our favorite naive user, our sister Emily, in for a look a few weeks later. Emily grabbed the machine from us. She took three minutes to write a thank-you note (this was just after Christmas) and spent a hogworthy half-hour making some fancy drawings. This behavior revealed one of the system's greatest flaws: The graphics in MacPaint are so enticing that it's hard to get people to pay attention to the less flashy MacWrite and Mac Multiplan.

MacFamily

Along with the announcement of the Mac, Apple revealed its plans for the Lisa, now divided into three (for starters) models -- Lisa 2, Lisa 2/5, and Lisa 2/10 --

RELEASE 1.0, January 23, 1984
thus creating a family and a growth path and all those other things so dear to serious buyers. (A portable version of the Apple //e, about which we know nothing official, should be announced in April.) All the Lisas are to be reconfigured with the Mac's 3½-inch disk drives, so that they can run Mac software. (If you're not compatible with anything else anyway, 3½-inch disks are wonderful — compact, reliable, and sturdy.) Indeed, the Lisa 2, with 512K memory and no hard disk, will be able to do little else. At a low-end price of $3495 (without a hard disk but with four times the Mac's RAM), it provides a reasonable upgrade option for Mac users, and can run Lisa applications one at a time. (The Mac itself will have a 512K version as soon as the chipmakers come out with 256K RAMs in volume.)

On the other hand, the Lisa 2/10 has the 10-megabyte hard disk and the $6980 price (including a whole megabyte of RAM) the Lisa should have had in the first place. Aided by the likely success of the Mac and the Apple 32 Family glow, it may ultimately achieve the success Apple originally envisioned for it—except in corporate accounts, where the struggle will take longer, and the results will be less, than pre-Sculley Apple ever imagined. (However, people who bought the Lisa for $10,000 last summer may be a little taken aback at having to pay an additional $2495 to turn their machine into a 2/10, albeit one with an extra external 5-megabyte drive. Apple may still have to rejiggle its pricing schedule a little.)

Along with the product family, which strengthens Apple's case in a market looking for configuration variety, modularity, breadth of product line and growth paths, Apple has joined the fiercely independent Mac and Lisa management teams. This move makes a lot of sense, but it's likely to lead to more of the personnel turnover that has plagued Apple (and many other high-growth companies). Apple is probably better able to afford to lose some people than its competitors, but the defections will remind Wall Street of the company's reputation for management instability.

Changing environment. Lisa's attractiveness, of course, has just been enhanced by IBM's recent announcement of UNIX on the PC (see page 8). Guess who already runs UNIX, and probably a lot faster than the 8088-bit IBM PC could ever hope to.

MacPosition

The Macintosh fits neatly at the bottom of the Apple 32 family, with all its members strengthening each other's credibility and providing a broad base of target machines for would-be software writers.

Unfortunately, Apple is not selling its products in a vacuum. The chart on page 4, sans quantification, positions Apple's and IBM's PC products. Within each grouping, pricing increases nonlinearly along the vertical and horizontal axes, while the size of each box corresponds, roughly, to unit shipments. Products occasionally stray out of their assigned areas: We expect to see, for example, a fair number of business people using the PCjr as a home terminal connected to their office PC, or their Apple //ep (for portable) connected to their office Mac — although that will depend on appropriate software. Some large businesses are still using Apple //s, although few are buying new //es.

As shown, Mac generally will not compete against the 64-128K PCjr; it will compete against the PC. Although it has even less than 128K of RAM available (see page 7), Mac can frequently do more with it because of its more powerful 68000 microprocessor. The Mac's basic software is most appealing to the personal computer.
user: productivity applications. Moreover, Mac has no color, although it does sport superb monochrome graphics, voice (of sorts), and other frivolities. (Interestingly, however, Tandy tells us that 50% of orders for its new high-resolution, 80186-based Model 2000 have included a color monitor, against Tandy's own expectations of 10%.)

However, Mac remains a personal, not a corporate, computer. Apple's national accounts salesforce, which is now in steady-state at about 100 account execs and 300 accounts, will of course be offering the Mac, but the company has pragmatically decided not to knock its head against the corporate wall for now. With momentum (it hopes) restored by the Mac and the Lisa Family, it can attack the corporate market in due course. It's a pity not to be in there fighting now, but Lisa has proved that it's futile to enter a market without live ammunition.

RE Lease 1.0, January 23, 1984
The money Apple made on its Christmas sell-out of the //e will come in handy over the next few lean quarters. The company is investing a ton of money in getting the Mac off the ground: Too little push, and it will stall; just enough, and it will soar. Hence the lavish spreading around of goodies: Nice volume discounts to colleges, $750 pricing to retail salespeople.

The University Consortium will give Mac an aura of academic respectability, train a generation of Mac users, and soak up about 50,000 units of production in 1984. Whatever the cost, the momentum this promotion will generate is worth it. The college students who use UNIX are mostly programmers; the college students who use Mac are likely to be liberal arts types who will infiltrate B schools and management ranks as well as dp departments.

The own-a-Mac program is also a brilliant move, informed by a lesson Apple learned from Lisa: In the stores where they try to sell the product, rather than simply take orders for the PC, Lisa actually does quite well. Now what do salespeople sell? They sell what they know, and what they can demonstrate. If the customer has heard of it or even asks for it, so much the better.

This move, while clever, is also earnest: A 54 percent-off offer (from a standard dealer price of $1621.75 at a 35 percent discount) indicates that the company expects to win a lot of converts with the 6000 systems (two per dealer outlet) it's allocating to the program out of initial production. We agree. While a PC has to be learned and its software installed, a Mac can be fooled around with. We've heard complaints that the PC isn't useful enough -- which are true. Unless you really need to do a spreadsheet, you're not likely to do much with a PC even after you've bought it. The Macintosh, on the other hand, is so enticing that people will find things to do with it, much as the owner of a new BMW will make extra trips to the grocer's and pick up his daughter after football practice just to put it through its paces.

Advertising. We hear that Apple plans to spend $25 million advertising the Mac on television (vs. $40 million for the PCjr). Five commercials have been shown to dealers. The hardest-hitting pans from an unidentified but recognizable IBM PC, which bounces when several pounds of manuals are dropped beside it, to a Mac, which hums away quietly as a small pamphlet floats down nearby. Other ads stress ease of use with shots of the screen and mouse. Generally, Apple is abandoning its excessively "lifestyle" ads to focus on clear, specific product benefits -- the right approach for the benefit-rich Mac.

Then there's the "1984" ad. This is a great ad for those of us who fancy ourselves intellectuals, but absolutely inappropriate for Sunday afternoon football, for which it was originally intended. Despite some strenuous internal objections, the ad has been aired as a pre-announcement teaser, but only for about $300,000 worth of mostly fringe air time. The ad comes on in black and white as an audience of shaved-headed people facing a giant screen listen solemnly to a leader's words on the great information society, the brotherhood of interconnection, and other such inspiring garbage-in. Suddenly a splash of color appears: A woman in a Mac tank-top and red shorts strides down the isle, swinging a sledgehammer round and round. She lets it fly. It smashes the screen, Big Brother vanishes, and there is light. The message appears: "Apple Computer. Why 1984 won't be like '1984.'" If you didn't get the reference to IBM, you won't like this ad; if you did get it, you don't need it.
MacResponse

Dealers/pricing. Dealer reaction has been mostly favorable, especially since Apple gave in to the demands of many and raised the price back to $2495 from the $1995 figure also considered. The dealers figure Apple can always drop the price later, and why give money away during the first few months when demand will outstrip supply anyway? The ideal time would be in April, when Apple is expected to announce the portable Apple //e and "adjust" pricing of the current version.

Overall, many dealers seem enthusiastic about the system; dealer salespeople plan to buy their own; and dealer managements are placing orders. Some dealers will also welcome the Mac with a little extra warmth determined by the depth of their unease at IBM's market power and its increasing tendency to sell direct to what dealers consider their customers.

Meanwhile, the price of $2495 should keep Mac from impinging too heavily on Apple //e sales; the other big deterrent to //e cannibalization is Mac's lack of color (which is offset for business users by the extraordinary clarity of its screen). The smart dealer, of course, recognizes that any time he can get a customer to buy a $1995 machine (to say nothing of a $2495 one) rather than a heavily discounted $1395 one, he's doing well, but dealers don't always think that way. They will measure the Mac by how many new sales it brings in.

And that's the real promise of the Mac. With 128K of RAM now and 512 soon, it will probably steal some sales from the IBM PC. But more importantly, with its friendly mien and demeanor, the Mac should bring in new customers, adding something to total microcomputer sales as well as grabbing a little share from IBM and more from various other contenders. The $2495 pricing, while high on the basis of specs, is reasonable given the machine's uniqueness and the aggressive marketing thrust behind it. A system that arouses dealer enthusiasm in itself and that offers 35 points or more on a $2495 sale (plus add-ons) should quickly gain the initial momentum that's so important.

While dealer enthusiasm could quickly wane for the Mac as it did for the Lisa, we expect that it will instead be reinforced by strong demand whetted by some, but not too much, supply. Although the natural comparison for the Mac launch is to the Lisa announcement last year, this announcement is in fact closer to that of the Apple //e: The system is already in (limited) production and on dealers' shelves at the time of announcement.

Third-party software vendors. Apple's line-up of writers for the Mac is impressive, although it's like a list of RSVPs to a party: Some say yes just to be polite and don't show up. Nonetheless, Microsoft with Mac Multiplan available in February; Software Publishing with PFS:file and report, to be demonstrated at the unveiling and promised for late April; Lotus with 1-2-3; and others who are not just signed up but actually working on products, will provide a strong contingent of support for the Mac and the entire 32 family.

While the single most important parameter to a software developer is the projected size of the market he can address on a given machine, other considerations do come into play. So far Apple has provided a relatively inviting system with the Mac and Lisa, proclaiming that it has little desire to provide applications beyond the basic MacWrite, MacPaint, and (soon) MacDraw and MacProject. Apple will also supply MacTerminal (terminal emulation) and a selection of programming languages and tools. All these qualify more as utilities than as applications.

RELease 1.0, January 23, 1984
The problems with Macintosh from the developer's point of view are two: its enforced consistency and the limited RAM. While the user benefits from having a consistent interface with the same commands for the same functions no matter what (see RELease 1.0, December 32, 1983), the developer may feel he can't establish the uniqueness of his product in such an environment. (We're extremely curious, for example, to see what 1-2-3 will look like on the Macintosh.) Apple notes that Macintosh itself may handle 50 percent or more of the work (mostly user interface routines) in a typical application, while application-specific functions make up the other half. That may save the developer a lot of labor, but what can he supply in the way of value-added? Functions, of course, and specific implementations of those general interface routines, but the question does bother some developers who strive for uniqueness in look rather than functionality.

The second problem is the limited RAM. The 128K limitation has been solved, sort of, with the Lisa 2. It's not exactly an upgrade -- it's a whole new purchase -- but at least it provides an upward path. More interesting will be a bigger-RAM Mac, which we expect to see as soon as the necessary 256K RAM chips are available. But that's only part of the problem: Of the Mac's 128K RAM, only 88K is actually available to the developer and user. When the system is in operation, about 22K of RAM is permanently occupied handling the bit-map display, and another 18K handles realtime system overhead. A very clever writer could grab some of that 18K, but most will simply have to share the remaining 88K with the user's data.

MacProjections

The system will be built in a $20-million state-of-the-art factory in Fremont, CA, which has been operating since November. At capacity, which the company expects to hit by this summer, it can reach an annual production rate of about a million units, up from about 15,000 units a month over the next few months.

As usual, Apple eschews projecting any figures itself, but it has taken the unusual half-step of quoting industry analyst Jean Yates in its publicity materials to the effect that Apple could sell 350,000 Macs in the product's first year. We suspect that Apple is low-balling it, and that in its heart of hearts the company is hoping to hit the half-million mark. This time, it could be right.
Just in time for UniForum, the annual gathering of UNIXniks, IBM announced that it would distribute a specially commissioned implementation of UNIX for the PC, developed especially for IBM by Interactive Systems of Santa Monica. Interactive, a 125-person company sprinkled with alumni of The Rand Corporation (also in Santa Monica), is well known in the minicomputer world for its implementations of UNIX on the VAX and other minis, and for a recently announced "friendly" UNIX interface. IBM's choice of Interactive, rather than a micro software vendor such as Microsoft, seems to indicate that IBM regards UNIX as a grown-up system rather than just another personal computer OS. Moreover, the system will cost $900 and be available only through IBM's own salesforce.

We suspect that IBM's announcement of UNIX on the 8088-based PC -- hardly an ideal environment for this complex, multi-user system -- was just a prelude to announcing it on forthcoming 80186- and 80286-based machines. Although IBM wasn't ready to announce the new machines, this was a fine way of signalling to third-party software vendors, "Get cracking on all those UNIX applications! We'll be there when you're ready." The early announcement also steals a little fire from AT&T's expected announcement of its machine, and says to the world: "This is an industry standard, not an AT&T standard."

Personal Computer/Interactive Executive, as IBM calls it, is actually an implementation of UNIX System III, rather than the newer, fuller-featured System V. It's merely a matter of timing, according to Interactive president John White, since the company started work a year ago. It has just announced System V on the VAX, so we figure PC-IX will make the same transition in due course.

Interested bystanders

In the ISV world, UNIX aficionados are crowing, and the rest are dragging out their UNIX manuals, dusting off their C compilers, and preparing to get to work.

Meanwhile, UNIX hardware vendors -- everyone from Altos and Apple to Convergent Technologies, Fortune, Onyx, Sun Microsystems, Tandy and Zilog -- are happily contemplating a UNIX-standard future.

For vendors of competing operating systems such as Pick and Phase One, the news is disappointing but not surprising. For vendors of competing UNIX implementations -- Microsoft, Digital Research, Santa Cruz Operation, Unisof, Venturcom, et al. -- the basic news is good, but it's a pity they didn't get the IBM contract. (Microsoft is, however, porting a version of Xenix onto IBM's 68000-based 9000 computer, which is used mostly for industrial/scientific applications.) For VisiCorp, UNIX provides an ideal multi-tasking operating system onto which to port Visi On, which is written in C.

AT&T, of course, is no doubt watching all this with interest, and thinking of all those sayings about friends and enemies: Is it better to have IBM selling with your operating system, or against it? AT&T has also been busy trying to round up applications for UNIX, both at UNIX trade shows and other gatherings, and even at a recent ADAPSO conference, which teems mostly with IBM-oriented software companies. It's sure to get more interest now that IBM has raised the rewards.

While we could list many flaws of UNIX, like most standards, it wins by default.

RELease 1.0, January 23, 1984
The story thus far...

The story begins with Expert-Ease, an unusually tantalizing product with no competition we're aware of. It was developed by a university professor who assigned marketing rights to Export Software International Ltd. of Edinburgh, Scotland, and is now being sold in the Eastern U.S. by a one-man New York City company called Expert Systems Inc. Jeffrey Perrone & Associates of San Francisco handles the West.

Expert-Ease is a PC-based expert-system generator for the lay user. He starts by setting up a table of criteria -- for returning phone calls, say. They might be: the time of day, the caller's relationship to the user, the reason for the call if stated, the caller's company and position, and so forth. For the next few days the system builder monitors his calls and his responses -- picking up the phone, calling the caller back, discarding the message. For each call, the values for the criteria and the resulting action are fed into the system, which uses them to build rules. (Frequently, the user will take contradictory actions, at which point the system prompts him for a finer resolution of the criteria, saying in effect, Why did you answer Juan's call right away and call Alice back? The answer is probably another set of criteria: While Juan and Alice are both junior salespeople, Juan is under budget while Alice is meeting her quotas.)

With a reasonable number of examples, the system can start making decisions for the user -- or for his secretary. It can handle up to 31 criteria and 250 values per criterion, and applications such as stock market predictions or medical diagnoses as well as phone calls or monitoring expense accounts.

That's the product. The conflict in the story comes from the product's horrifying user-hostility. It's alarmingly easy to press the wrong key and send the whole system into a grey hole: It comes back, but without the data you've spent the last half-hour entering. Expert-Ease's developers in Scotland say they are now fixing up the product, but they point out that their 40-odd customers have learned to work around its bugs. Expert Systems unfortunately has marketing rights but no authority to force improvement of the program if the Scots don't come through. That's the kind of contract Personal Software, now VisiCorp, had for resale of VisiCalc, and over which it's now in heavy litigation with Software Arts.

Expert Systems is now looking for money to launch a marketing program for Expert-Ease, but no sensible venture capitalist would fund such a venture without stronger rights to the original product. That's the story, so far...

Sony decision decides little

The recent decision by a split Supreme Court allowing Sony freely to sell its recording equipment, and thus de facto allowing consumers to "time-shift" (a.k.a. copy) broadcast television "software," is only vaguely relevant to the computer software business as far as we're concerned, but it sets a disturbing tone. While we are not a lawyer, we understand that the defense of "fair use" to charges of copyright infringement almost never included total duplication for whatever purpose; now it does. Secondly, the premise of "fair use" was that the duplicated
material was incorporated as part of a second work of which it formed only a small piece; this also no longer applies. There will certainly be people making a case that software is "software," and attempting to extend these new rulings.

However, a deciding factor in the recent decision is that the Sony type of "software" is generally "used" once and erased; precisely the opposite is true of most computer software. Moreover, computer software is frequently used in exactly the commercial sort of way that the recent decision says is inconsistent with "fair use." Thus the decision, based on practical issues such as consumer behavior and enforcement problems as well as on legal principles, will keep the lawyers busy, but it leaves the computer software issues as unresolved as ever.

Take the drudgery out of using your modem!

Software Publishing, whose easy-to-use PFS:Write is moving nicely up the charts, will announce its next product at Softcon with endorsements from MCI and Western Union. The package, PFS:Access, records a user's log-on sequences and lets him dial in and log onto up to eight separate time-sharing services ranging from The Source, MCI Mail or Dow Jones (preconfigured) to his company mainframe. (He cannot, however, easily trade files with his grandmother unless she happens to have an electronic mailbox -- or a mainframe.) The system also offers automatic data encryption and decryption on request, with a user-defined password. Like the rest of the PFS:Series, PFS:Access is unremarkable to the naked eye, but it's got that unique PFS:Ease of use. Most users don't want to do very much, and know how to do even less; PFS:Access ($95 on the PC and $70 on the Apple //e) will be perfect for them. It's the first such product from a "brand-name" software company that we're aware of, although lots of modem makers are bundling in such software -- including the peer-to-peer capabilities PFS:Access lacks -- with their hardware. Retailers may well add PFS:Access for them.

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PERSONAL COMPUTER FORUM UPDATE

Recent additions to the speaker list include Joyce Wrenn, director of software publishing, IBM Entry Systems Division, and John White, president of Interactive Systems, Santa Monica (see page 8). We regret that Bill Millard, chairman of ComputerLand, will be unable to appear as announced. Aside from that, please remember it's in Phoenix, not Palm Springs, and we look forward to seeing you.
THE RELEASE 1.0 CALENDAR

1984

JANUARY 23–24  Office Information Systems Conference - Fort Lauderdale. Contact Melissa Marr at The Gartner Group, (203) 964-0096.

JANUARY 24  Apple's annual meeting - Cupertino. Product introductions are likely... Call Jane Anderson at Regis McKenna, (415) 494-2030.

JANUARY 25  Apple analysts' meeting - Palo Alto. Call Chuck Berger at Apple, (408) 996-1010.


JANUARY 26  Intel Corporation analysts' meeting - New York City. Call Terry Earle, NYSSA, at (212) 344-8450.


JANUARY 29–FEBRUARY 1  AEA Orlando Financial Conference - Orlando. Contact Marie Miller at (415) 857-9300.

JANUARY 30–FEBRUARY 2  Communication Networks Conference & Exposition '84 - Washington D.C. Contact CN '84 at (617) 879-0700.

FEBRUARY 2  Digital Equipment Corp. analysts' meeting - New York City. Call Terry Earle, NYSSA, at (212) 344-8450.


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FEBRUARY 21
Scientific-Atlanta, Inc. financial analysts' meeting - Atlanta. Call Susan Lane at (404) 441-4626.

FEBRUARY 21-23
Softcon - New Orleans. International trade fair & conference for the software industry. Contact Peggy Kilburn at Northeast Expositions, (617) 739-2000 or (800) 343-2222.

FEBRUARY 22-24
PICK Spectrum '84 - Reno, NV. Sponsored by IDBMA. Contact Monica Kidde-Giobi at (619) 578-3152.

FEBRUARY 22-24

FEBRUARY 22-24
Robertson, Colman & Stephens Technology Conference - San Francisco. Call Julie Hale at (415) 781-9700.

FEBRUARY 23
Varian Associates Inc. stockholders' meeting - Palo Alto. Call Calvin Tabor at (415) 493-4000.

FEBRUARY 25
Happy Birthday Mecca!

FEBRUARY 27

FEBRUARY 28
M/A-COM, Inc. stockholders' meeting - Boston. Call Jack Forbes at M/A-COM, (617) 272-9600.

MARCH 5-6

MARCH 7

MARCH 7-9

MARCH 7-9 & 12-14
AIA Financial Conference for Emerging Growth Companies - Monterey. Two sessions. Call David McKell at (415) 857-9300.

MARCH 8
Cullinet analysts' meeting - Westwood, CA. Contact John Donnelly at Cullinet Software, (617) 329-7700.

MARCH 8-9

MARCH 11-12
Softeach Spring '84 Forum - San Francisco. Contact Bruce Cummings at Softsel, (800) 325-9189 or (213) 412-1700.

MARCH 12-13

MARCH 12-15
Interface '84 - Las Vegas. Co-sponsored by Business Week and Data Communications. Call John Lusa or Bob Diamond at The Interface Group, (617) 449-6600 or (800) 325-3330.

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MARCH 19-21  ADAPSO Spring Management Conference - Dallas. Call The ADAPSO Education Dept., (703) 522-5055.

MARCH 19-21  Small Computer Conference - Napa, CA. Sponsored by Dataquest. Contact Gail van Tubergen at (408) 971-9000.


MARCH 22-25  West Coast Computer Faire - San Francisco. Sponsored by Computer Faire. Call Sally Nestler at (617) 965-8350.

MARCH 25-26  Softeach Spring '84 Forum - New York City. Contact Bruce Cummings at Softsel, (800) 325-9189 or (213) 412-1700.


MARCH 26-28  Comdex in Japan - Tokyo. Contact Milton Berns at The Interface Group, (800) 325-3330 or (617) 449-6600.


APRIL 1-3 & 4-6  AEA Monaco Financial Conference - Monte Carlo, Monaco. Two sessions. Contact AEA at (415) 857-9300.

APRIL 2-4  Speech Tech '84 - New York City. Call Media Dimensions, Inc. at (212) 680-6451.

APRIL 3-5  International Teleconference Symposium - Philadelphia. Contact the Conference Administrator at COMSAT, (202) 863-6000.

APRIL 4-11  The Hanover Fair - Hanover, West Germany. Call Delia Associates at (800) 526-5978 or (201) 534-9044.

APRIL 5-7  Comdex/Winter '84 - Los Angeles. Contact Milton Berns at The Interface Group, (800) 325-3330 or (617) 449-6600.

APRIL 8-9  Softeach Spring '84 Forum - Chicago. Contact Bruce Cummings at Softsel, (800) 325-9189 or (213) 412-1700.


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APRIL 15-16  Softeach Spring '84 Forum - Atlanta. Contact Bruce Cummings at Softsel, (800) 325-9189 or (213) 412-1700.

APRIL 16  Boston Marathon

APRIL 17-19  Federal DP Expo - Washington, D.C. Contact Milton Berns at The Interface Group, (800) 325-3330 or (617) 449-6600.

APRIL 22  Kris Olson and Mark Fowle get married in Atherton. Thousands cheer!

APRIL 24-26  Communications Conference - Napa, CA. Sponsored by Dataquest. Contact Gail van Tubergen at (408) 971-9000.

APRIL 25  Micro D annual meeting - Costa Mesa, CA. Call Godfred Otuteye at (714) 540-4781.


MAY 16-19  Interconnections '84 - Houston. Contact Jennifer Fox at ICCA, (213) 548-0765, or Walter Ulrich at (713) 666-5433.


MAY 22-25  Comdex/Spring - Atlanta. Contact Milton Berns at The Interface Group, (800) 325-3330 or (617) 449-6600.


JUNE 3-6  Summer Consumer Electronics Show - Chicago. Call Bill Glasgow at (312) 861-1040.

JUNE 4  ADAPSO Financial Analysts' Meeting - New York City. Call ADAPSO at (703) 522-5055.

JUNE 6-8  Display Terminal Conference - Newport Beach, CA. Sponsored by Dataquest. Contact Gail van Tubergen at (408) 971-9000.


RELease 1.0, January 23, 1984
JUNE 11-13  World Computing Services Industry Congress IV - Tokyo. Contact ADAPSO (co-sponsor) at (703) 522-5055.

JUNE 15-16  Sybex Computer Pioneer Days Conference - San Francisco. Contact Susanne Beauregard at (415) 848-8233.

JUNE 18-20  AEA Minneapolis Financial Conference. Contact AEA at (415) 857-9300.


JULY 15-20  AEA Microcomputer Conference - Monterey. Contact AEA at (415) 857-9300.

JULY 16-19  Democratic National Convention - San Francisco.

JULY 28-AUGUST 12  Summer Olympics - Los Angeles.

AUGUST 5-8  AEA Monterey Financial Conference. Contact AEA at (415) 857-9300.

AUGUST 20-21  AEA Seattle Financial Conference. Contact AEA at (415) 857-9300.

AUGUST 20-23  Republican National Convention - Dallas.

SEPTEMBER 10-12  AEA Dallas Financial Conference. Contact AEA at (415) 857-9300.

SEPTEMBER 11-13  Electronic Imaging '84 - Boston. The first International Electronic Imaging Exposition and Conference. Contact Electronic Imaging '84 at (212) 340-9780.


OCTOBER 25-30  Orgatechnik '84 - Cologne, West Germany. Call Judson Spencer at Cologne International Trade Fairs, (212) 737-3950.

Please let us know if you have any events you would like us to include.

—Lisa Halliday
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