Mac II First Look

... a report from
the *MacInTouch* newsletter

Introduction
This is a first peek at Apple's Mac II computer, due to be announced the first week in March. The Mac II is the "Open Mac" known also as the "Paris." Its heart is a 68020 CPU and its spine a 6-slot, 32-bit Nubus. High-resolution monitors can display detailed color, gray, or black and white images.

Hardware
the Box
The basic box is somewhat like an IBM PC system unit, although the box will probably be plastic with metal RFI shielding on the inside like the Hard Disk 20SC. The top lifts off for access.

   Inside, there's a power supply and (loud?) fan on the left side, with two standard 3-prong connectors (like the Mac's) for AC power. Next to the power supply/fan is the 6-slot Nubus in the middle. The Nubus connectors have a lot of pins in a small connector; it's unique, and unlike other card slots such as the IBM PC's or DEC VAX's. There is room for large (13"?) cards, running from the front of the computer to the back. A video card takes up one slot. There are six holes in the rear of the box for connections to the cards. On the right side the motherboard and a little speaker are on the bottom. There were 2MB of RAM onboard, but we couldn't really see how the board was laid out without disassembling things. From Excel we deduced that a 68881 numeric coprocessor was installed. Above, on a shelf hiding the motherboard, are two floppy drives in the front and a hard disk in the back. In the back of the motherboard are two standard Mac Plus serial ports, a SCSI port, a sound port and two desktop bus ports (one used for the Apple IIGS keyboard and mouse). The fan on the left pulls air in from vents on the right (over the motherboard) and vents in the back (behind the disks).

Keyboard and mouse

Other keyboards will probably be optional, but we used the IIGS keyboard and mouse. They were nice in comparison to the Mac's equivalents. The mouse's teflon pads made it glide more easily, and we liked the action and lower profile of the IIGS keyboard.   The mouse plugs into the keyboard and the keyboard plugs into one of the desktop bus ports. One noticable difference is how the cursor acts when a disk is contending with the mouse for CPU time. It's more "jumpy" on the Mac II than on the Mac.

monitor

We used a high-resolution color monitor with about 640 x 480 pixel, 72 dot/inch resolution. With no real color applications to run, we used it in black- and-white mode, where it was nicer than a Mac screen, because of the extra size and equivalent detail. If you enable color, the Apple symbol above the desk accessory menu turns into the rainbow-colored Apple logo. With gray-scaling enabled, the logo is shown in shades of gray.

Where's the off switch?

The power is turned on from a switch on the keyboard. It is turned off by selecting "Shut Down" from the Finder menu. There is also a reset switch in the back which sometimes shuts off power when the keyboard switch doesn't work. On the right side are the same interrupt and restart switches the Mac has on the left. If all else fails, you pull the plug out of the wall.

SCSI

We were unable to get either of two external SCSI drives to work, but this is probably not due to the architecture, but to something we didn't understand or a hardware bug. The internal hard disk was connected via SCSI.

AppleTalk

We printed successfully to a LaserWriter over AppleTalk. (The new Laser Prep required reinitializing the LaserWriter.)

floppy drives

We used standard 800K Macintosh disks with no problems.

System Software

The operating system in use was Finder 5.4/System 3.3. We also ran System 3.2/Finder 5.3 for a short time without any problems. The new Finder has some interesting features, such as a trashcan that bulges when there's something in it, and a watch cursor whose hands move while you're waiting.

The major changes noticable in the system software are a new control panel and a desk accessory for choosing among video cards. The new control panel desk accessory lets you scroll through a set of different panel modules, each of which controls a part of the system. A sound panel lets you choose from a wide variety of sounds for Mac "beeps." (We could not test this.) Other modules let you choose color (1, 2, 4 or 8 color bits, or gray) and the startup disk.

There are new icons in the alert dialogs, replacing the old cartoon–like icons.

First Impressions
The computer is as fast as you've heard, two to four times faster than a Macintosh Plus. You really notice it when you use a cache or RAM disk – there seems to be less of a balance between CPU and disk access with the Mac II — it's the disk that holds it back, not the CPU. You also notice a great speed increase in screen drawing operations, in programs ranging from the Finder to MacDraw and PageMaker.

Compatibility
Introduction
We tried a lot of applications quickly, looking for major bombs, not subtle problems. Applications varied from instantly crashing to exhibiting bizarre behaviour after a few operations to running beautifully much faster than on a normal Mac. We did not have a modem for testing telecommunications programs or a MIDI interface for testing music programs.

Overall, application compatibility seemed similar to, or a little worse than, last year's HFS compatibility problems. The ROMs we saw were probably not final, and the ones that come with production models may be a little more compatible, but probably not a lot more. A lot of developers (including Apple) are going to have to clean up their programs to work correctly on the Mac II.

Specifics
We've listed the applications we tested in categories according to the extent of testing and the results. No programs were tested extensively. Macsbug was running during all tests.

no major problems noticed in basic functionality tests

Describe
DiskTop DA
Double Helix
Excel 1.03
  says "using math chip" in About Excel dialog
Fedit 1.1
FileMaker Plus
HFS Backup 2.0
  Actually did a Selected–Files backup without any trouble.
  Moving icons in information box zoomed at super speed.
MacID
MacTools 6.3
Medit
MockWrite DA
More 1.1
Oasis 1.4
PackIt III
PageMaker 1.2
RAMStart 1.23
ReadySetGo 3
Set Clock
Spellswell 1.3a
SuperPaint
Word 1.05
WriteNow

no problems noticed in application startup and quit

AppleLink
Disk First Aid
Guide
M (demo)
MCS
Microphone
Omnis 3 Plus
Professional Composer
Red Ryder 9.4
  can't use extra size of screen for window
Reflex

serious errors during operation

Downhill Racer game
FreeTerm
MacDraft 1.2a
MacPlaymate
Performer
Stepping Out

bombs

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DiskFit beta test version
Layout
MacTerminal 2.1
MacWrite 4.5
Opcode Sequencer 1.02
QUED 1.54
VideoWorks
Word 3.00 beta
Works 1.0

<u>other</u>
Cricket Draw gives a message saying it's only compatible with 128K ROMs and quits to the Finder.

Timing tests
These tests are "quick and dirty" but should give you some idea of the speed of the Mac II. The Mac Plus comparisons were done using a Mac Plus running System 3.2, with 2.5MB of RAM, and a fast DataFrame XP40 external SCSI disk.

Word 1.05/no cache
> launch Word from internal hard disk: 4.5 sec.
> *(Mac Plus: 6.5 sec.)*

PackIt III/1MB cache/SCSI disk
> time to pack Excel 1.03 with compression: 2:02
> *(Mac Plus: 7:19)*

MacDraw/1MB cache/SCSI disk
> first time
>> open MacDraw: 7.5 sec.
>> *(Mac Plus: 15 sec.)*
>> quit to Finder: 5 sec.
>> *(Mac Plus: 6 sec.)*
> second time
>> open MacDraw: 3 sec.
>> *(Mac Plus: 11 sec.)*
>> quit to Finder: 1.5 sec.
>> *(Mac Plus: 5.5 sec.)*

Conclusions
This is a very impressive machine. It has the speed. It has the flexibility and expandability (with the Nubus and desktop bus and SCSI ports). It has the compatibility (although many developers will have to clean up their programs). It has color. But it's not portable …