

# Applications

••••• OCTOBER 1986 •••••

Hi!



Apple Monitor  
512K Apple IIgs

3.5 Drive  
5.25 Drive

Mouse

Detached Keyboard

## Apple IIgs



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THE PUBLICATION OF THE  
**APPLE USERS GROUP** (SYDNEY)  
AUSTRALIA

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# The New Apple //GS

On September 16th., Apple Computer announced the new Apple //GS. Designed to be the high end of the Apple // family, it combines the software compatibility of the Apple //, with the graphics interface of the Macintosh.

The GS in the Apple //GS underscores the emphasis on Graphics and Sound - two of the strengths of the new machine.

## General features

These include faster processing speeds, high resolution colour graphics, greater memory and high quality sound synthesis. The computer will reinforce the appeal of Apple equipment to home, education and business users, seeking high performance with superior resale value and thousands of software options.

The Apple //GS is a powerful contemporary addition to the Apple // line - originally launched in 1977. With each subsequent model, Apple has ensured a complete upgrade path to the new level of performance, resulting in an Australian installed base of over 80,000 Apple // computers - in a world Apple population of over three million.

## New Colour Scheme

Apple has introduced a new colour to their computers called "Platinum", to be used on the Apple //GS as well as some of the new peripherals.

## Performance

Five design criteria were used in the development of the //GS software compatibility with the // family, faster speed, more memory, enhanced graphics and sound.

In Australia, the computer includes a standard 512K of random-access memory (RAM) with a locally manufactured memory card, 128K of read-only memory (ROM) and eight expansion slots. Built into the system are serial ports, a headphone jack, a joystick port, a video port, support for the AppleTalk network, a new Apple desktop bus-port for keyboard, mouse and other input devices, with disk interface to both 5.25 inch and 3.5 inch disk drives.

Like the Macintosh, the //GS comes with AppleTalk network. These features give the //GS the potential to print on a LaserWriter printer and connect with other Apple computers on the AppleTalk network.

## Software compatibility

Engineers at Apple tested the current best-selling Apple // software programs to ensure compatibility. The //GS runs more than 90 percent of these popular packages. Those that do not conform to Apple programming guidelines and communications packages are among programs that will require revision by their developers.

In addition to testing existing software, Apple placed more than 160 prototype //GS machines with developers. Apple anticipates new software products in the 3.5 inch disk format, programmed to take advantage of the //GS computers' speed, colour, sound and memory features.

Many developers are supplying applications with graphic interfaces similar to that of the Macintosh. Others are creating programs that fully use the sound and graphics capabilities of the //GS, such as those that incorporate video digitisers and voice synthesisers. Still others are enhancing existing programs or converting them to 3.5 inch format, which provides larger disk space.

## Speed and Memory enhancements

The increased clock speed of the 16-bit 65C816 microprocessor makes the //GS more than twice as fast as other members of the // family, which use the compatible 65C02 chip. RAM can be expanded to 8 megabytes and ROM can be increased to 1Megabyte.

## Powerful Graphics and Sound

Superior graphics support easy-to-learn software with Macintosh-like interfaces, animation and enhanced simulation capabilities. The following graphics modes are available:-

- 640 by 200 pixels - 4 colours per scan line  
- choice of up to 4,096 colours.
- 320 by 200 pixels - 16 colours per scan line  
- choice of up to 4,096 colours.
- 560 by 192 pixels - monochrome

Sound capabilities have also been enhanced. The //GS can play up to 15 notes simultaneously, for synthesising both music and the human voice. This can be achieved through an Ensoniq sound chip with its own 640 K dedicated RAM, the same chip used in professional quality music synthesisers.

The sound capability can be used to teach foreign languages, compose musical scores or - combined with a wordprocessor - can be used to help students learn to both read and write. New applications using computer generated sound will also benefit handicapped people.

## Price and availability

Prices for the Australian market are expected to be announced within the next few weeks, while local availability is expected in October.

Continued on page 6



It is rumoured that the price of the Apple //GS with colour monitor will be A\$3995, whilst the black and white screen model will be A\$3495. An upgrade for the Apple //e will cost A\$1295.

### Software for the new Apple //GS

Most new software programs will feature a graphics user interface with pull-down menus, windows, icons and multiple fonts. The //GS contains in ROM, the "Quick Draw" routines that are similar to the Macintosh. This capability, combined with the //GS' huge colour palette and super high resolution mode have inspired an array of products that utilise graphics in innovative ways.

- Free-form painting programs, such as "Paintworks Plus" (to be marketed as GS Paint from International Solutions), allow the user to create his or her artwork using the mouse and palettes of colours, shapes and fill-patterns.

- New structured graphics programs, including "TopDraw" (Styleware) and an updated version of "The Printshop" (Broderbund), manipulate boxes, circles and shapes, and provide libraries of colour clip-art for creating charts, graphs, fliers, maps or greeting cards.

- Entry-level desktop publishing programs, such as "Newsmaker" (Broderbund Software Inc.), and "PageWorks" (Megahaus Corp.), let the Apple // user lay out professional looking fliers, and newsletters, printing them out on Apple's LaserWriter and ImageWriter // printers.

- Animation - with graphics and sound that approach professional quality is possible on the //GS using software such as the updated version of "Fantavision" (Broderbund).

- Educational and entertainment programs also are more appealing and effective because of //GS graphics. New and revised programs include "Puppy Love" (Tom Snyder Productions), "Explore-a-Story" (D.C.Heath and Co), and "Silent Service" (MicroProse).

- Wordprocessing programs will also incorporate a Macintosh-like interface. New and revised products include "MultiScribe" (Styleware), "Writer's Choice" (to be marketed as GS Write by International Solutions), "MouseWrite" (Roger Wagner Publishing), "WordPerfect" (WordPerfect Corp.), "VIP Professional" (VIP Technology) and others.

- Communications software from two Australian developers will immediately offer local communications solutions. NetComm Australia will launch the integrated "NetComm Program" featuring standard comms software for communicating with such services as OTC Minerva, AustPAC, or standard remote computer-to-computer communication, plus videotex software for VIATEL. Bizap will release a videotex-only package called "Viaterm".

- Sound packages and add-on devices highlight the sound generation capabilities of the //GS, and Apple anticipates the release of many more products that generate or complement sophisticated music and voice sounds. Products include "The Echo IIb" (Street Electronics) plug-in board for adding speech to software programs; "Talking Text Writer" (Scholastic Software), a program for teaching reading and writing; "Kid's Time II" (Great Wave Software), which consists of two educational software packages from First Byte Inc; and "Room Mates" speakers (Bose Corporation).

- Hardware additions will include two new video digitisers;

A frame grabber from A-Squared that provides black-and-white and colourisation processing, and operates at 20 frames per second; and AST Research, Inc.'s graphics video digitisers which provides real-time colour and black-and-white image processing, in addition to special effects features.

A parallel printer interface from Orange Micro Inc, which enables printing directly from the screen, an IBM-type keyboard from DataDesk International, a graphics tablet from Kurta Corporation, and a stereo card from MDIdeas, Inc.

### Compatibility

Apple tested a large number of best-selling Apple // software packages and found that more than 90% of them operated normally on the //GS. Many run faster due to the system's increased clock speed. Some programs have only minor display or documentation differences. Programs that do not operate correctly fall primarily into two categories:

- \* Communications software which requires an Apple // Super Serial card will not operate normally with a modem plugged into the built-in serial port. The //GS contains a different communications chip (the same chip that is in the Macintosh) than is found on the card, in order to provide AppleTalk protocols, a wider selection of baud rates and other enhancements.

- \* Programs that were developed outside of Apple's programming guidelines.

The //GS is compatible with nearly all printers, plotters, modems and disk drives which worked with the earlier Apple // computers, as well as many peripheral cards.

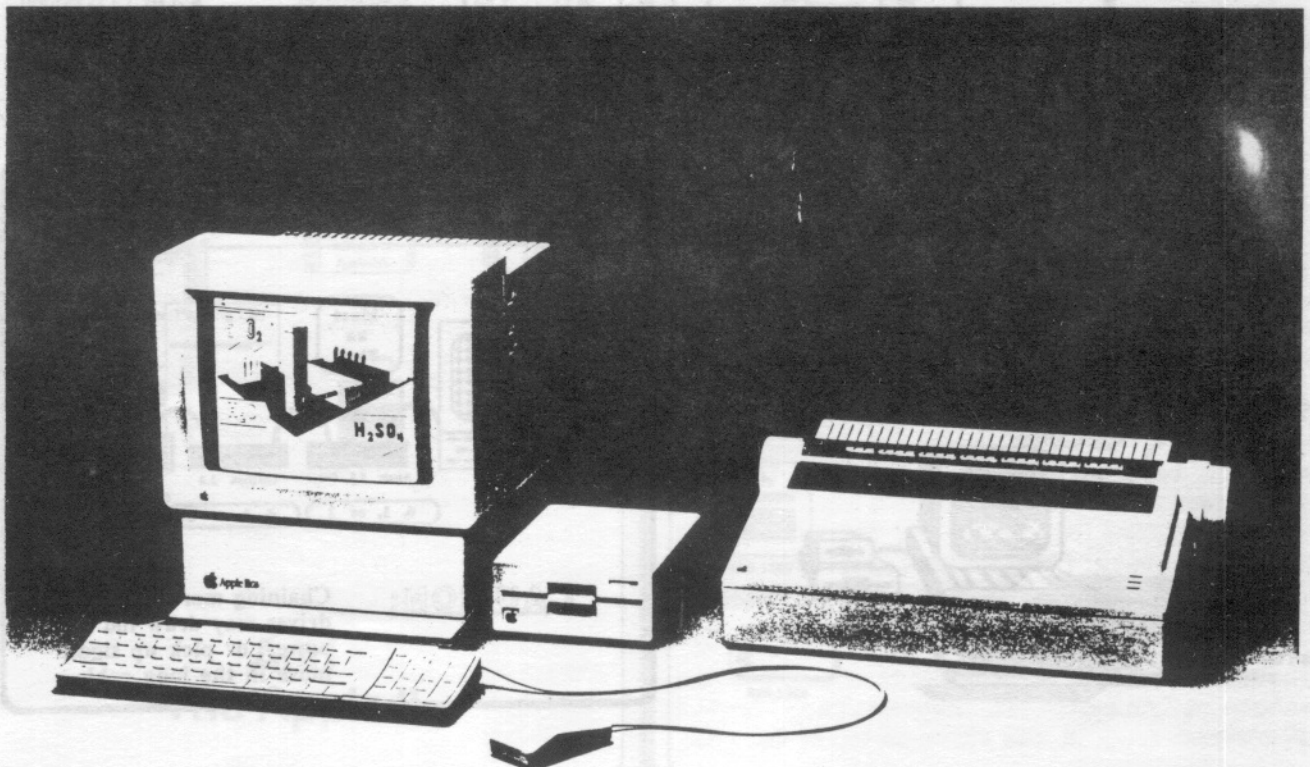
Cards that plugged into the auxilliary slot on the //e, such as many multifunction cards, will not work with the Apple //GS. However, the //GS has built-in many functions provided by these cards, such as extra RAM, RGB support, 80 column text, accelerated operating speed and clock.

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## APPLE IIG TECHNICAL SPECIFICATIONS

PROCESSOR	65C816 microprocessor, 2.8 MHz clock speed 8 bit data bus, 24 bit address bus allows for addressable memory of 16 megabytes
MEMORY	512K RAM standard, expandable to 8 megabytes 128K ROM standard, expandable to 1 megabyte
OPERATING SYSTEMS	Supports ProDos 16, ProDos 8, Pascal, CP/M (with Z-80 card) and Dos 3.3
EXPANSION SLOTS	8; 1 dedicated multi-purpose RAM/ROM memory expansion slot; 7 additional input/output slots
GRAPHICS DISPLAY	7 video display modes: -40 column text mode (by 24 lines), -80 column text mode (by 24 lines) Low-resolution: 40 H by 4 V dots, 16 colors High-resolution: 260 H by 192 V dots, 6 colors Double high-resolution: 560 H by 192 V dots, 16 colors Super high-resolution: 320 H by 200 V dots, 16 colors per scan line out of a palette of 4,096 colors; 640 H by 200 V dots, 4 colors per scan line out of a palette of 4,096 colors
KEYBOARD	Detached 80 key typewriter-style keyboard including 10-key numeric keypad
MOUSE	Apple DeskTop Bus Mouse standard
INTERFACES	NTSC-compatible composite color video output Analog RGB Video output Headphone jack with programmable volume control Apple DeskTop Bus Input port for keyboards, mice and other input devices SmartPort disk interface for connecting both 5.25 and 3.5 disk drives Two serial ports utilizing the SCC communication chip Game/joystick port Input/output sound connector on logic board
SOUND CAPABILITY	Ensoniq 32 oscillator synthesizer chip with dedicated 64K RAM
INPUT	Line Voltage: 220V to 260V AC Frequency: 50-60 Hz Power: 60 Watts
CLOCK/CALENDAR	Built-in clock for automatic date stamping of files

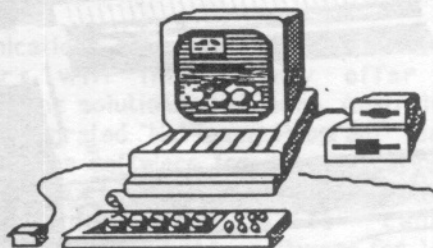




## Quick Reference

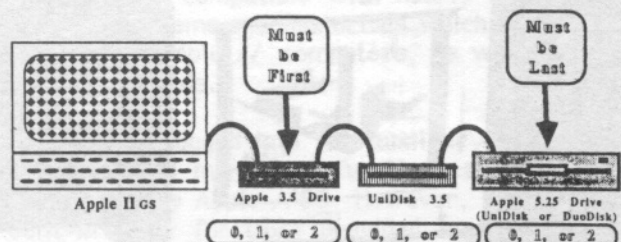
### Disk Drives for Apple II Computers

DRIVE	Apple 3.5 Drive	Apple 5.25 Drive	Apple Hard Disk 20SC
DESCRIPTION	800K, double-sided, sturdy 3.5-inch disks. Requires no external power. Plugs into disk drive port. Capable of daisy-chaining with other disk drives. Runs all available 3.5-inch software.	140K, single-sided 5.25-inch disks. Plugs into disk drive port. Requires no external power. Capable of daisy-chaining with other disk drives.	Requires Apple II SCSI Interface Card. 20 Mbyte capacity. 25% to 40% faster than non-SCSI drive. May daisy-chain up to four SCSI devices. Available in platinum for IIGs, beige for Macintosh Plus.
CPU			
II GS	THE recommended disk drive for the Apple IIGs. Affordable alternative to a hard disk for users desiring high capacity file storage.	For those who want an affordable drive which is compatible with the thousands of Apple II software programs on 5.25-inch media.	For high-performance use where mass storage, speed, and flexibility are required. Provides users with largest capacity Apple hard disk solution available. Requires card.
IIf	Not recommended. Use UniDisk 3.5.	Not recommended. Use UniDisk.	For high-performance use where mass storage, speed, and flexibility are required. Provides users with largest capacity Apple hard disk solution available. Requires card.
II+	Not recommended. Use UniDisk 3.5.	Not recommended. Use UniDisk.	For high-performance use where mass storage, speed, and flexibility are required. Provides users with largest capacity Apple hard disk solution available. Requires card.
IIfc	Not recommended. Use UniDisk 3.5.	For those who want an affordable drive which is compatible with the thousands of Apple II software programs on 5.25-inch media. For IIfc with beige key caps, use UniDisk.	Not recommended.



#### Quick Reference Guide

##### Daisy-Chaining Disk Drives with the Apple II GS

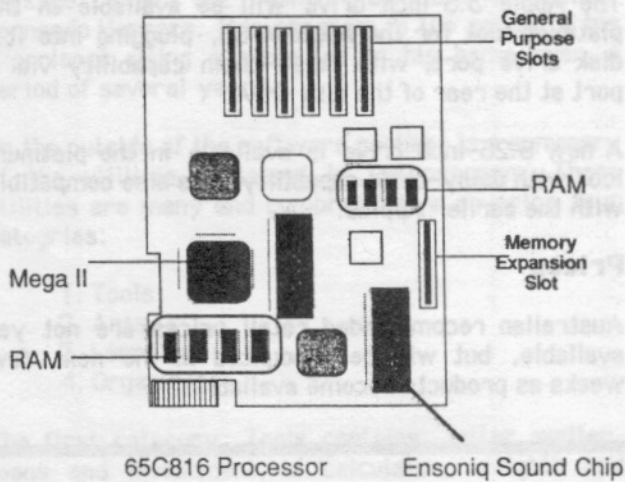


#### CAUTION:

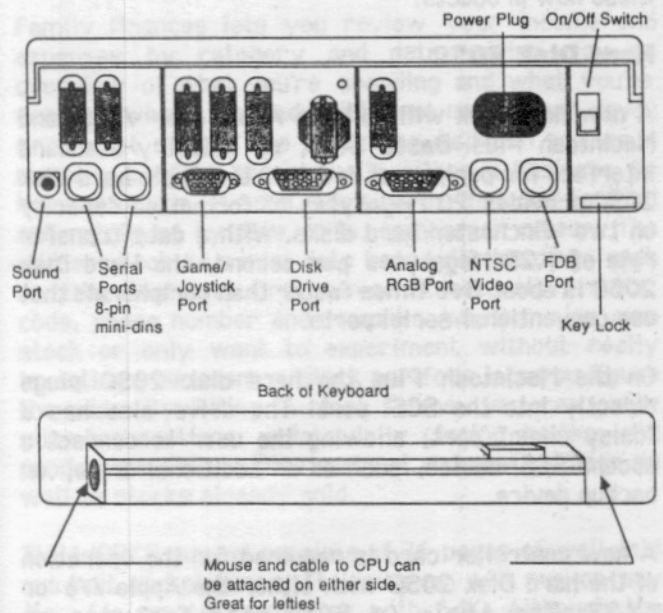
Chaining more than four drives may draw too much power, or pick up signal noise in the long cable.



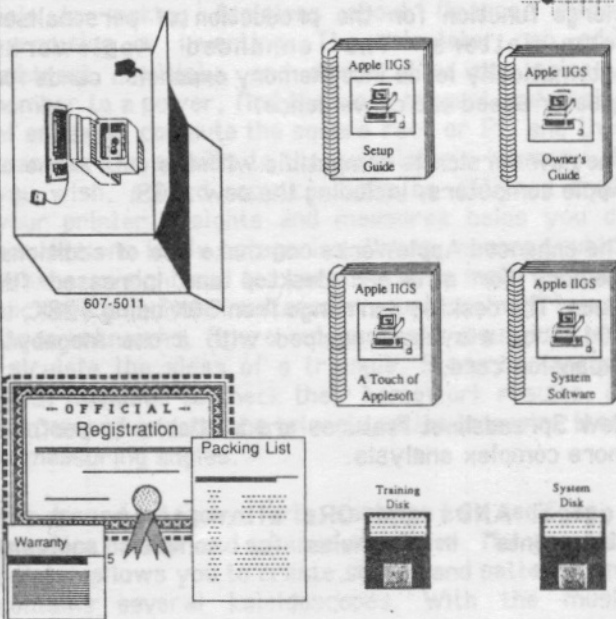
## Apple II<sub>GS</sub> Logic Board



## Apple II<sub>GS</sub> Ports

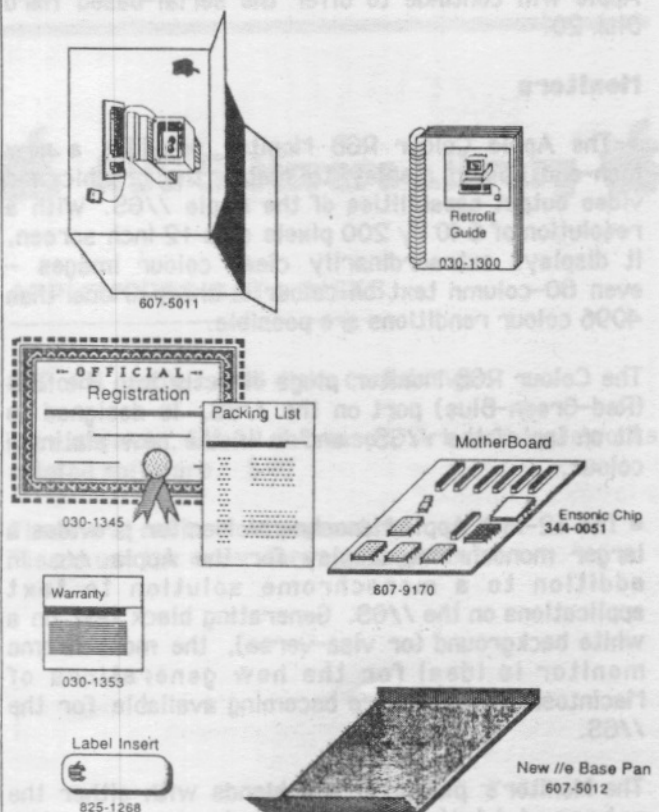


## What's in the Box?



And  
The Apple II<sub>GS</sub>

## What's in the Upgrade?







## New Apple Platinum Peripherals

A new range of peripherals has been released to compliment the release of the new Apple //GS. The new Apple "Platinum" colour scheme will identify these new products.

### Hard Disk 20SC

A new hard disk will suit the Apple //e, //GS and Macintosh Plus. Based SCSI, an industry-standard interface for peripheral devices, the Apple hard disk 20SC provides 20 Megabytes of formatted capacity on two Winchester hard disks. With a data transfer rate of 1.25 Megabytes per second, the Hard Disk 20SC is about five times faster than peripherals that use conventional serial ports.

On the Macintosh Plus the hard disk 20SC plugs directly into the SCSI port. The drive also has a "daisy-chain" port, allowing the user to connect a second SCSI device, such as an additional drive, or backup device.

A new controller card is required for the operation of the hard Disk 20SC with either the Apple //e or //GS. The Apple // SCSI card features an expandable data bus, allowing the user to connect up to four additional SCSI devices.

Software built into the card conforms to the ANSI SCSI protocols, ensuring compatibility with a large number of SCSI devices now available.

Apple will continue to offer the serial-based Hard Disk 20.

### Monitors

- The Apple Colour RGB Monitor provides a new high-end colour display to match the graphic and video output capabilities of the Apple //GS. With a resolution of 640 by 200 pixels on a 12 inch screen, it displays extraordinarily clear colour images - even 80-column text on colour is sharp. More than 4096 colour renditions are possible.

The Colour RGB Monitor plugs directly into the RGB (Red-Green-Blue) port on the //GS, is designed to fit on top of the //GS, and is in the new platinum colour.

- The 12-inch Apple Monochrome Monitor provides a larger monochrome display for the Apple //c in addition to a monochrome solution to text applications on the //GS. Generating black text on a white background (or visa-versa), the monochrome monitor is ideal for the new generations of Macintosh-like software becoming available for the //GS.

The Monitor's platinum case blends with either the enhanced //c (with platinum keycaps) or the all-platinum //GS. It sits either on top of the //GS

or on the existing Colour Monitor //c stand and plugs directly into the video jacks of each system.

### New Floppy disk drives

The Apple 3.5-inch drive will be available in the platinum look for the Apple //GS, plugging into it's disk drive port, with daisy-chain capability via a port at the rear of the disk drive.

A new 5.25-inch drive is available in the platinum look with daisy-chain capability. It is also compatible with the earlier Apples.

### Prices

Australian recommended retail prices are not yet available, but will be announced in the next few weeks as products become available.



## New AppleWorks

### Enhanced

AppleWorks, which combines wordprocessing, spreadsheet and database functions now offers a mail merge function for the production of personalised form letters. The enhanced AppleWorks automatically loads into memory expansion cards for greater speed and convenience.

The new version is compatible with the entire line of Apple computers, including the new //GS.

The enhanced AppleWorks can make use of additional memory for a larger desktop and increased file sizes. The desktop can range from 56K using 128K, to 1012K on a system equipped with a one megabyte expansion card.

New Spreadsheet features are available to perform more complex analysis.

Logical ANDs and ORs allow compound "IF statements" in formulas for complex analysis.



# Applications



JANUARY/FEBRUARY 1987

## HIGHLIGHTS



**NEW MEETING LOCATION - Map On Page 5**



**Apple //GS Upgrades  
Rebuild a DOS 3.3 Catalog**



**SuperPaint-Review  
Microsoft WORKS-Review**



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THE PUBLICATION OF THE  
**APPLE USERS GROUP** (SYDNEY)  
(Incorporated in N.S.W.)

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REGISTERED BY AUSTRALIA POST—PUBLICATION No. NBH 3716



# Apple IIGS Compatibility Update.

(Downloaded from "AppleLink" by courtesy of Apple Australia and Peter Sandy.)

Over 300 products were tested by Apple for compatibility with the Apple IIGS. The result of those tests were published in the 1986 Apple II Products Compatibility Guide. Some test results were listed incorrectly. Below is the corrected information on these products. Please update your copy of the 1986 Apple II Products Compatibility Guide to reflect these changes:

PRODUCT	COMPANY	NOTE CODE
Access II	Apple	CP
Apple At Play	Apple	ATC
Computer SAT Preparation	Harcourt Brace & Jovanovich	X
Ernie's Quiz	Children's Television Network	AT
Graphics Exhibitor	Koala Technologies	X
Mask Parade	Springboard	X
Pinpoint	Pinpoint Publishing	X
Pinpoint Spelling Checker	Pinpoint Publishing	X
Quicken	Intuit	X
Robotware	Muse Software	X
Triple Dump	Beagle Brothers	P
Alphabet Circus	DLM	X
Sticky Bear Numbers 1982	Xerox Educational Publishing	X
BPI General Accounting (Version 2.3.1 - ProDos)	BPI	C

CODES: A --> Works with Alternate Display Mode  
 C --> Compatible but unable to access the Control Panel from within program  
 F --> Doesn't work with ADB mouse  
 P --> Doesn't print from port  
 T --> Text Page 2 doesn't work  
 W --> Doesn't work with mouse, works with keybd  
 X --> Product works as defined in documentation  
 Z --> Product doesn't work on GS

## CHANGES/CORRECTIONS to Apple II Products Compatibility Guide

---The Apple Color RGB Color Monitor does NOT work with the Apple IIe.  
 ---Testing results listed under IIC in the compatibility guide are for the increased memory option and not for the standard IIC.

PLEASE NOTE: The products listed in the 1986 Apple II Products Compatibility Guide reflect only those products that have been tested by Apple. There are thousands of Apple II products that were not tested. For questions about a product not listed in the guide, please contact the product's manufacturer.

## FOR SALE-FOR SALE-FOR SALE-FOR SALE

For Apple IIe:-

MULTISCRIBE \$80  
 DMP UTILITIES (ImWr) \$75 o.n.o.  
 PRINTSHOP COMPANION \$55  
 Originals complete with manuals.

Apple Ext. 80 column card \$90 o.n.o.

DRUM KEY - A digital Drum Machine  
 I/F Card with 28 true Digital Drum Sounds.  
 Not protected, Programmable  
 User friendly, Keyboard control  
 Suits any Apple II, Works with RAMdisk  
 C/w I/F card disk and manual. **Price \$190**





## Preliminary Data Sheet

Reprinted by courtesy of  
Apple Computer Australia

# APPLE IIGS UPGRADE

## Transform your Apple IIe into an Apple IIGS

The Apple IIGS™ Upgrade\* gives your Apple® IIe personal computer the advanced capabilities of the newest - and most powerful - Apple II. With this simple, dealer-installed option, you get the incredible colour graphics, sound, and expandibility of the Apple IIGS without sacrificing your investment in your Apple IIe.

The Apple IIGS Upgrade adds 4,096-colour high-resolution graphics, 15-voice sound generation, an AppleTalk® Personal Network interface. RGB colour video output, the ability to connect Apple Desktop Bus™ peripherals, and more. Yet you retain compatibility with most Apple IIe software and accessories - while gaining access to exciting new Apple IIGS applications.

(\*Scheduled availability: January 1987.)

### Benefits -

#### The Apple IIGS Upgrade....

- Brings the power of the Apple IIGS to an Apple IIe
- Can be installed quickly by your authorised Apple dealer.
- Retains the beige case of the Apple IIe, so the computer still matches your existing peripherals.
- Runs most of the existing software written for the Apple IIe and IIc, including programs written in DOS 3.3, ProDOS®, and Pascal - and runs them up to 2.8 times faster. (CP/M applications can also be used by adding a Z80 card.)
- Gives you 256 kilobytes of user memory (RAM), for sophisticated applications and large documents.
- Accepts the Apple IIGS Memory Expansion Card, for easy RAM expansion of as much as a megabyte.
- Lets you have a total RAM of over 8 megabytes
- With the addition of the Memory Expansion Card, lets you run advanced graphics-based applications similar to those written for the Macintosh™ computer, but developed especially for the Apple IIGS.
- Adds incredible richness to graphics with two new high-resolution colour graphics modes, which offer a palette of 4,096 different colours.
- Produces up to 15 voices simultaneously, for natural-sounding music, speech and sound effects.
- Retains the same number of general-purpose expansion slots as the Apple IIe, letting you use most existing Apple IIe expansion cards.
- Include built-in AppleTalk firmware and connector, for easy connection with the Apple LaserWriter® printer and other shared devices.
- Allows you to connect directly to an AppleColour™ RGB Monitor, for high-resolution colour display.
- Lets you "daisy-chain" as many as four 3.5 inch and 5.25-inch drives from the built-in disk drive port.
- Gives you access to Apple Desktop Bus™ peripherals.
- Includes QuickDraw II graphics routine
- Offers a Memory Manager in ROM to efficiently handle application memory usages.
- Includes a built-in clock for the time-stamping of files.



## Apple IIGS Upgrade -

### A Closer Look

The Apple IIGS Upgrade gives you the best of both worlds: the advanced features of the powerful Apple IIGS personal computer, plus protection of your investment in your Apple IIe. Even the "look" of your overall system is retained, since your more powerful computer is housed in the traditional beige-coloured IIe case.

The heart of the Apple IIGS is the 65C816 microprocessor, which supports both traditional 8-bit Apple II programs and the newest Apple IIGS 16-bit applications. This allows a single computer to expand the horizons of the Apple II while retaining compatibility with virtually all existing software and hardware.

By transforming your Apple IIe into an Apple IIGS, you'll gain a variety of impressive capabilities. Create breathtaking colour presentations with the new Apple IIGS high-resolution graphics modes displaying as many as 256 colours at once from the palette of 4,096 colours. And since the Upgrade adds RGB colour-video capability to your IIe, you can display these stunning creations on the new AppleColour RGB Monitor. (All standard Apple IIe graphic modes are retained).

If you want impressive sound capabilities in your personal computer, the Apple IIGS Upgrade brings them to you. A special 32-oscillator sound chip produces output from up to 15 different "instrument" simultaneously, letting you create amazingly realistic music, speech and sound effects. For maximum fidelity, you can connect an external speaker or headphones, (the cassette jacks of the IIe are not present after the upgrade).

Your upgrade computer retains the same number of general-purpose expansion slots as your original IIe, and most existing cards can still be used. Existing Apple IIe multifunction cards are an exception, but the Apple IIGS Upgrade provides the capabilities (such as 80 column text, memory expansion and RGB colour video) that formerly required additional hardware.

The auxiliary slot of the Apple IIe is replaced in the Apple IIGS Upgrade by a dedicated memory-expansion slot. Both RAM and ROM (read-only memory) can be expanded: RAM by 8 megabytes, and ROM by 1 megabyte.

Installing an Apple IIGS Memory Expansion Card in your upgrade system instantly adds as much as a megabyte of RAM. The basic card comes with 256 kilobytes; or the fully expanded card, which has 1 megabyte. This enhanced user memory allows you to create much larger documents with AppleWorks™ Version 2.0 and many other applications, and to hold large applications in memory.

The Memory Expansion Card also allows your system to run more powerful software, including Macintosh-like applications developed especially for the Apple IIGS. To get the most from these advanced programs, you'll want to add the Apple Desktop Bus Mouse, the first of a new series of input devices for the Apple II family. The Apple Desktop Bus protocol allows you to "daisy-chain" as many as 16 separate input devices, such as a mouse, graphics tablet, and numeric keypad.

Your existing Apple II applications also benefit from the Apple IIGS Upgrade. Since the system (clock) speed of the Apple IIGS is 2.8 megahertz instead of the 1.0 megahertz of the Apple IIe and IIC, programs run up to 2.8 times as fast.

The new disk drive port provided by the Apple IIGS Upgrade gives you easy data-storage expandability. Up to four Apple 3.5, Apple 5.25, and UniDisk™ 3.5 drives can be daisy-chained from the connector. The Apple IIGS Upgrade also adds AppleTalk Personal Network capability to your Apple IIe for easy access to the Apple LaserWriter, a remote ImageWriter™ II printer and other AppleTalk accessories.



You may also wish to add some of the exciting new Apple accessories for which the upgrade is not required. For instance, there's the Apple Monochrome Monitor, for crisp white-on-black text and graphics. And the Apple II SCSI Card, which allows you to access the 20 megabyte Apple Hard Disk 20SC and up to three other SCSI-compatible peripherals.

The Apple IIGS Upgrade is a simple, dealer installed option that involves replacing the logic board and metal base pan of your Apple IIe. The new logic board contains the 65C816 microprocessor, RAM, ROM, Ensoniq sound chip, expansion slots, and connectors; the base pan holds the logic board securely in place inside the Apple IIe case.

### System Requirements

To use the Apple IIGS Upgrade Kit, you must have an Apple IIe personal computer. This upgrade is not compatible with other computers in the Apple II family.

### Technical Specifications

Consult the Apple IIGS data sheet.

### Apple IIGS Upgrade Order No; A2S6001

With your order, you'll receive:

- Apple IIGS Logic board
- Apple IIGS /IIe base pan
- Apple IIGS identification plaque
- Apple IIGS Upgrade Owner's guide

*The Apple IIGS Upgrade must be installed by an authorised Apple Dealer.*

You may also wish to purchase the following accessories, which are scheduled for availability

in January 1987: Apple Desktop Bus Mouse  
Order No. A9M0331

Apple IIGS System Disk  
Order NO. A2D6007

# BACK<sup>4</sup>UP

## ESSENTIAL DATA DUPLICATOR

Back up your copy-protected disks with **ESSENTIAL Data Duplicator 4 PLUS** ■ **EDD 4 PLUS** is new technology, not just 'another' copy program. The **EDD 4 PLUS** program uses a specially designed hardware card which works with your disk drives to back up disks by accurately copying the bits of data from each track. Don't be fooled... no other copy-program/system for Apples can do this! ■ In addition to backing up disks, **EDD 4 PLUS** includes several useful utilities such as examining disk drives, certifying disks, displaying drive speed rpm's, plus more!

■ **EDD 4 PLUS** runs on Apple II, II Plus (including most compatibles), and IIe, and is priced at \$190.00 (duodisk/ unidisk 5.25 owners must add \$32.00 for a special cable adapter). ■ A standard

**EDD 4** version which doesn't include any hardware is available, and can be used on Apple IIc and III (using emulations mode) and is priced at \$125.00.

■ Bankcard and Master card accepted by phone. Add \$3.00 to all orders for postage and handling. All orders must be prepaid.

**UTILICO SOFTWARE**

83 HALL ST., BONDI BEACH,  
NSW 2026 PHONE (02) 30 2105

WARNING: EDD is sold for making archival copies only