



## Virtual ][ version 6.1: technical specifications

Processors	6502 (1 MHz – 10 MHz configurable), 65C02 (1 MHz – 10 MHz configurable), Z80A (2 MHz or 4 MHz configurable).
Graphics	Low Resolution, High Resolution, Double Low Resolution, Double High Resolution. Monitor can be set to color or monochrome. Full screen mode supported.
Text	40 and 80 column display; includes additional character generator ROMs for support of international character sets (British, French, German, Greek , Italian, Swedish); support for custom character generator ROMs.
Sound	Emulates the built-in speaker; volume can be controlled. Supports the Mockingboard sound card, as well as realistic sound effects.
Machine control	A running machine can be saved, and resumed later on. A machine can be also paused and resumed without stopping the emulator. The “variable speed” options allows the machine to run faster during lengthy operations, without affecting gameplay or sound.
RAM memory	4 KB up to 8 MB, configurable. Emulates the RAMWorks and Saturn cards for memory expansion > 64K.
ROM memory	Needs separately supplied ROM image files. “Official” Apple ROM files are recognized and used automatically; user defined ROM files can be installed manually.
Keyboard	Emulates all keys on the original keyboard, including “Open Apple”, “Closed Apple” and Reset. Has the “soft caps lock” feature to emulate the original Apple ][ keyboard. Supports international keyboard layouts.
Floppy disk	DOS, ProDos, Pascal, CP/M. Supports disk images in the widely used .dsk and .nib formats.
Hard disk	ProDos hard disk images up to 32 MB; supports the widely used .2IMG format and the .hdv format.
Cassette recorder	Cassette tape output can be saved as an AIFF file, and be read later on. The program can process digitized original Apple II tapes.
Printers	Emulates Epson FX-80 and Apple ImageWriter II, both able to save the print output as a PDF file. Also provides a simple ASCII text printer, able to save printed output as a text-only files. Supports printing text to the Macintosh clipboard. Emulates the Grappler+ printer interface card and the Apple serial card in printer mode.
Game paddles	Game paddles can be controlled with the mouse, with the arrow keys, or with a USB game pad / joystick. Mapping of the USB device to the paddles is fully configurable.
Mouse	Emulates the Mouse ][.
Serial interface	Emulates the Apple Super Serial Card. The serial I/O can be configured to use a real serial port on the Macintosh, a built-in modem, or a Bluetooth device.
Date and time	Emulates the Mountain Computer Apple clock card, the Thunderclock card, and the “no-slot” clock.
Integration	Integrates with the Mac OS X environment in several ways: text can be copied / pasted between the environments, and a Mac folder can be mounted as a DOS 3.3 diskette or ProDOS hard disk. Indexes disk images for quickly locating an Apple II file via Spotlight, and lets you browse Apple II diskettes in CoverFlow. The program can be controlled with AppleScript.
Migration	Includes “A2V2”, a utility to transfer original Apple II diskettes to disk images on the Macintosh.