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LASER 128

AN AFFORDABLE COMPATIBLE

*With its low price tag and 95 percent
Apple //e compatibility, the Laser 128
may be just the bargain you're
looking for.*

by Eric Grevstad, *inCider* Review Editor

on't bother discussing "event marketing." Never mind user demographics. Forget about sculptured designs in Apple Fog or Platinum. The Laser 128 is about as pretty as a barracks-beige Army jeep, sold mostly through mail order, and its implicit sales pitch is as subtle as a discount laundry detergent's: "It's cheap and it works." It'll never have the glamor of the IIGS, and it lives under the shadow of an Apple copyright lawsuit—albeit one proceeding at imperceptible speed, with Laser sales unaffected since last spring—but that hasn't stopped the //e-compatible Laser from selling, spinning off a line of peripheral products, and deserving a look from anyone considering a Commodore. Or, to be blunt, anyone considering an Apple //c.

The Laser is built by Video Technology of Hong Kong, whose U.S. branch, based in Illinois, handles sales to retail and most mail-order dealers. (Video Technology supplies electronic educational toys to Sears, which chose the rival Franklin Ace 2100 when picking an Apple clone for its Christmas catalogue.) The most visible Laser vendor, however, is Central Point Software (9700 S.W. Capitol Highway #100, Portland, OR 97219, 503-244-5782), which imports Lasers directly and sells them for $395 plus $20 shipping.

Central Point President Michael Brown doesn't see himself as competing with Apple or even with Franklin; rather, he hopes to promote the Apple II standard to low-end buyers who would otherwise miss out on the superior Apple software base. In practice, though, the Laser is bound to appeal to anyone shopping for an 8-bit computer, as opposed to a 16-bit IIGS or IBM PC clone—II Plus owners looking for an affordable upgrade, parents of Apple-using school kids or schools needing extra machines, office //e users who'd like a clone at home.

In addition, with its new expansion box and 3½- and 5¼-inch disk drives, plus a disk-controller card that promises to run anything from Disk II to Macintosh drives, the Laser is making the transition from a mail-order Brand X to a system brand name in its own right.

The *inCider* staff has been testing everything in the Central Point catalogue, including a "Laser 640" with an internal memory-expansion card that may not see mass distribution. We haven't found a whole Apple //e for half price, but we've found the most important part: about 95
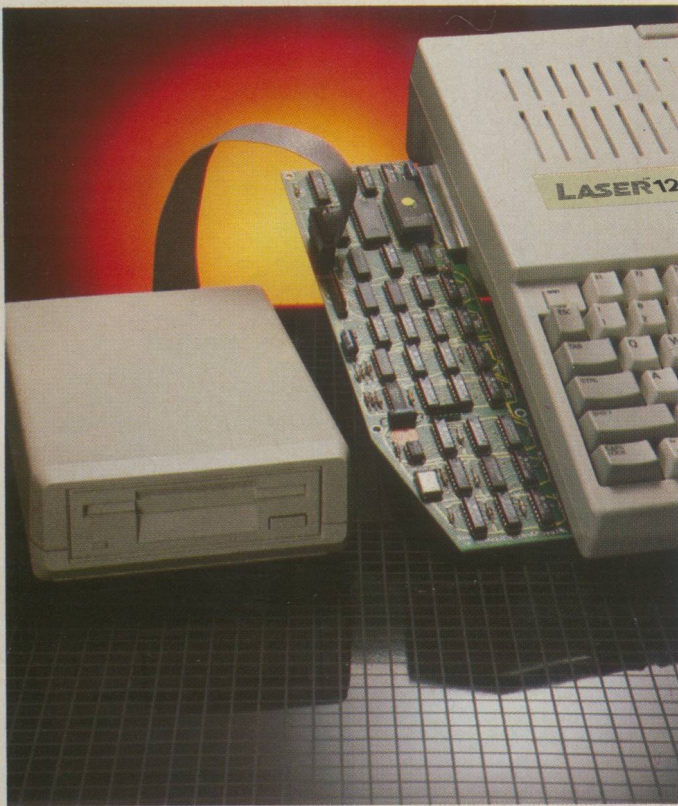
The Laser's Universal Disk Controller and 3½-inch drive—and the awkwardness of leaving cards in the side expansion slot.

percent Apple compatibility. We like the disk-controller card, too.

Visually, the 128 resembles a bigger //c, about 15 versus 11½ inches wide (thanks to its numeric keypad) and half an inch thicker (thanks to the expansion slot on its left side). Its appearance gets mixed reviews from the office staff: I think it's rather homely, with a blockish beige-and-gray keyboard and an awkward side profile of angles and rectangles, but others credit it with a sort of utilitarian appeal.

Like the //c, it has a carrying handle that props up the unit for desktop use, a 17-volt external power supply, a headphone jack and volume control knob, and a disk drive (slot 6, drive 1) on the right. Laser drives' pivoting latches feel more secure, but don't eject disks like the //c and Disk //c's push-down latches.

The Laser's rear-panel interface ports also match the flat Apple's: the AC power connector, two five-pin DIN serial ports for printer and modem, second disk-drive port, composite-video jack, video expansion port, and a mouse/joystick port. These connectors work like their //c counterparts with the same equipment, except that the second drive port accepts only a 5¼-inch drive; like the //e, the Laser can't use a UniDisk 3.5 without a controller card. The best use for the video expansion port is to hook up an IBM-type RGB color monitor (the required adapter cable is $25).

In addition, the 128 has a rear port no Apple supplies: a 15-pin parallel printer interface (the standard Centronics adapter cable is another $25). While port 1 normally emulates a Super Serial Card or //c serial port, flip the parallel/serial switch on the Laser's keyboard and the interface emulates an Apple Parallel or Epson APL card. You may want to explore some graphics applications' printer menus—Springboard's Certificate Maker's SSC driver

didn't work with our Laser and ImageWriter II, though we found another printer choice that did—but the two interfaces, backed by a ROM-based menu for choosing printer and communications-port parameters, should let the Laser print with almost anything short of a LaserWriter.

Since you're more likely to use the parallel/serial switch than the standard or Dvorak keyboard toggle, the latter is on the Laser's back panel instead of above the keyboard. The 40/80-column switch is up front, as is a mono/color switch that nicely defuzzes displays on monochrome monitors. There are indicator lights for power on, disk access, and caps lock (in one of its minor annoyances, the Laser always has caps lock active when turned on).

Besides the familiar keys in the familiar layout (with open and solid triangles instead of apples), the Laser keyboard adds a numeric keypad with its own plus, minus, slash, asterisk, and enter keys—handy not only for number entry, but for navigating AppleWorks menus (it would be ideal if it had its own escape key). The keypad's also nice because Laser newcomers reaching for the regular top-row number 5 are prone to hit F5, one of the ten function keys. They're useless for most programs, but shortcuts for some control-key commands—F3 (control-B) and F9 (control-L) in AppleWorks word processing, for example.

Past that, however, the keyboard is one of the Laser's weakest points—stiff, clackety, and noisy, with a generally plastic feel and a sometimes balky, sometimes hair-trigger spacebar. It gives definite tactile feedback and it's bearable after a couple of days' practice, but it never leaves a high-quality impression—even discounting one editor's complaint that it doesn't have a shelf to hold a pencil.

The Next Best Thing

Of course, all the interfaces and keypads in the world wouldn't save the Laser if it flunked the chief test of any clone: running Apple II software. Perfect compatibility is an elusive target—the 128 has easy-to-change ROM chips mounted beneath a bottom panel, and upgrades are $25 for registered owners—but the Laser, with its Applesoft-matching Microsoft BASIC, is impressively close to that goal. Besides all Apple II text and graphics modes, it even boasts double-vertical hi-res and double-hi-res graphics (280 by 384 and 560 by 384 pixels, respectively), should any vendors write Laser-specific programs using them.

While it comes with a slim manual and no operating system (Central Point includes its Copy II Plus utility disk), it runs ProDOS, DOS 3.3, and Pascal—and CP/M, Central Point promises, though we didn't have a Z-80 card to try it. It also runs nearly all the self-booting software you can find.

Software sees the Laser as an enhanced //e, not a //c; Apple's //c System Utilities disk returned an error message, but the Nikrom Diagnostics program "recognized" a //e with 128K of memory and got through its 80-column card test before shouting "Bad news! ROM is BAD!" when it looked for Apple code in Laser chips. As with an enhanced //e or //c, older programs' inverse-video capitals (such as those on the status line of DOS 3.3 Apple Writer //) appear as gibberish, while newer mousetext software looks great.

Some of the programs we tested successfully were AppleWorks 1.1 and 1.3, Apple Writer // (DOS 3.3 and ProDOS), Pinpoint, SuperCalc3a, PFS:Access, Quark Catalyst 3.0, MultiScribe, Fantavision, The Print Shop, F-15 Strike Eagle, The Hitchhiker's Guide to the Galaxy, WordPerfect 1.1, Snooper Troops, and ProFiler 2.14, not to mention preliminary copies of AppleWorks 2.0 and The Rocky Horror Show.
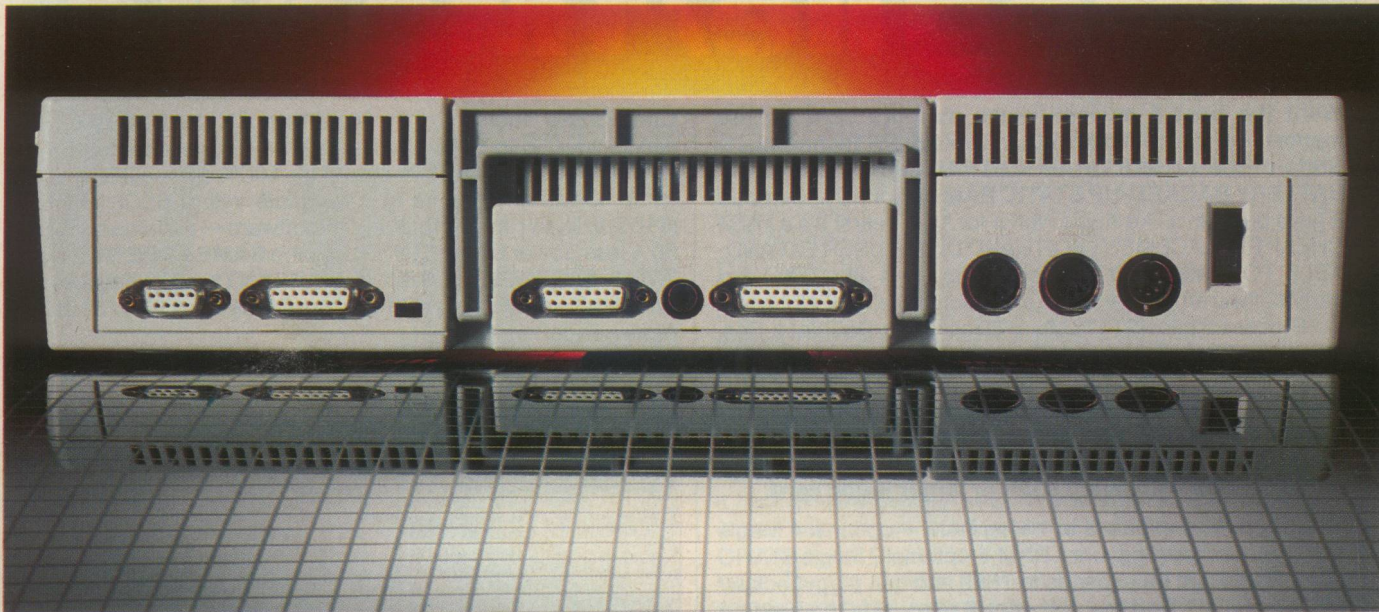
Laser rear panel includes serial printer and modem ports, parallel printer interface, video jacks, and disk-drive port.

Along with a lot of flying colors, we met a handful of defeats. Some were minor—menu titles appeared skewed from their file folders in Pinpoint's Point-to-Point 1.5 (the next version, Central Point says, works correctly). The cursor blinked at double speed with MacroWorks-modified copies of AppleWorks. Kyan's KIX shell for ProDOS produced a garbled message and spun the disk forever when loading, but appeared healthy after a Control-Reset to stop the spinning. More seriously, the integrated program Foundation worked except for its necessary window-sizing routine; the games in Garry Kitchen's GameMaker ran, but the edit menu blinked and blurred too violently for the monitor's vertical-hold control to tame. MouseWrite 1.5.7 (Roger Wagner Publishing) stopped after its title screen, though the new version, 2.6, had no trouble.

Those, however, are all the problems we've found so far. Games, graphics, sound, serious spreadsheets—the Laser is amazingly Apple-compatible. Except for the mediocre keyboard, its only real disadvantage to the //c is that you can't plug a 3½-inch drive directly into it. The external drive port, as mentioned above, takes a Disk //c or the slightly bulkier 5¼-inch drive which Central Point sells for $150 plus $10 handling—an attractive price, and the drive is quiet and works well with a //c as well as a Laser.

The Hardware Picture

Besides beating the //c on price, the Laser has an edge in expandability. If the //c is closed and the //e is open, the 128 could be described as ajar.

For one thing, there's space for a memory-expansion card inside the machine. The Laser we tested had a 512K addition, compatible with Applied Engineering's RamWorks or Checkmate Technology's MultiRAM cards; Applied's AppleWorks Expander recognized and ran with it, as did the new Lotus 1-2-3 clone, VIP Professional.

Central Point's Michael Brown, however, hadn't decided as of early September whether to offer that card or concentrate on the newer Apple Memory Expansion standard, which rules out VIP, but has the advantage of being automatically recognized by current versions of ProDOS and AppleWorks. At press time, Central Point was selling a $249 bundle of Applied's Apple-standard 256K RamFactor card and the Laser expansion box (see below), which

Brown said solved most buyers' interest in memory expansion; should the market demand an internal card, he said that an Apple-type unit fitting the space of our model's RamWorks compatible was feasible. Contact Central Point to see what's shipping by the time this is published.

Past that, there's the expansion slot on the Laser's left, the functional equivalent of slot 7 on an enhanced //e. Its obvious drawback is its inability to take cards that won't work in slot 7 (such as the SwyftCard or any auxiliary-slot card), but others we tried, such as the UniDisk //e controller and RamFactor, were fine.

There are, however, two other disadvantages. One is that the slot can't handle any card drawing more than 500 milliamperes of power, such as most accelerator cards (although Brown says that his employees, defying the 500-mA warning in the manual, run Applied's Trans-Warp card all day long).

The other is the reason Central Point candidly recommends you don't rely on the expansion slot except for occasional use: A circuit board hanging naked from the side of your computer is a frightening sight, one that sent shivers up the spine of everyone who saw it and thought of a carelessly moved hand or marauding house pet. The small UniDisk controller is unobtrusive, but full-length cards run a risk of accidental jolting or removal during use.

For safety's sake (both physical and electrical), you can spend $85.95 and make your already plain Laser an eyesore: Buy the bare-bones metal expansion box, which comes with its own eight-volt power supply and cord, on/off switch and power light, and a short cable that plugs into the Laser's side slot, tipping the box slightly off its base. Inside are slots 5 and 7, plus cutouts for your cards' standard or small (//c-style) interfaces. It adds another five or six inches to your system's width, but the extra slot and extra security are worth it—and a Laser with a TransWarp card, in Brown's phrase, "gets up and hauls."

Cheap Drives, Chameleon Controller

Even Apple owners who don't anticipate buying a Laser should be interested in Central Point's $150 Universal Disk Controller (UDC) card. A production copy of the card's

ROM chip arrived barely in time for our Labor Day deadline and was updated a week later (the July magazine ads were a little vaporous), so we haven't lived with the UDC for long. So far, however, it looks like an innovative achievement: a card that lets you connect two floppy drives of almost any description, mixing and matching among Disk II, Disk //c, Laser 5¼-inch, UniDisk 3.5, generic 3½-inch, or Macintosh (single- or double-sided) units.

The card fits into any free slot. As with Apple's //e UniDisk card, a Laser or enhanced //e will recognize and boot from it (if its attached drives contain disks) in slot 7 before trying the conventional disk controller in slot 6, while II Plus or unenhanced //e owners can type PR#7 (or whatever) from BASIC. Its two 20-pin connectors fit old-fashioned Disk II cables (you must clip one cable line if you plan to mix Disk II and 3½-inch drives), but usually hold two DB-19 cables that plug into newer drives.

From the Laser's side slot or expansion box, the UDC ran both Laser and //c external 5¼-inch drives flawlessly, and accepted Apple's 800K UniDisk 3.5 as Slot 7, Drive 1 (though AppleWorks' "Disk drives you can use" list took a sluggish five seconds to appear); the UniDisk became drive 2 when a //c or Laser 5¼-inch drive was connected to its rear daisy-chain port. A single-sided (400K) Mac external drive read the directories of existing disks, but couldn't boot or retrieve files from them. Maybe ProDOS and the desired files were always on the flip side; Copy II Plus formatted a new 400K ProDOS disk in the Mac drive, which worked perfectly.

As the equivalent of a double-sided Mac drive or UniDisk at a bargain price, Central Point sells a Chinon America drive for $195 (bundled with the UDC for $285). Of the two Chinon drives we received, one was dead on arrival—Brown confessed his first 100 Chinons had a high return rate; current units are "hand-picked." The other worked smoothly with both the UDC and as an external Macintosh drive. It doesn't work with a //e UniDisk controller.

Compared to the UniDisk 3.5, the Chinon 800K drive has no daisy-chain port or access light, though it has a helpful manual-eject button that works even when the power's off. It doesn't convey the same quality as the UniDisk, but then a UniDisk costs as much as two Chinons plus a UDC.

We'll have to wait for later production models to make a final judgment on the Chinon's reliability, but the drive's price and the UDC's versatility make an attractive combination for anyone looking to upgrade to 3½-inch storage. It's hard to say how many buyers would be willing to coax disks out with paper clips in return for sharing drives with their Macintosh, but it's hard to resist the image of a Laser with four disk drives (two 800K plus built-in and external 143K), totaling 1.8 megabytes of storage. You couldn't do it with a //c.

It Grows on You

Overall, that sort of cheap but resourceful spirit sums up the Laser's appeal. You can't pay half Apple's price without giving up something; if you want easy expandability, more visible (as well as intangible) quality, and the last degree of compatibility, the Apple //e is a better computer than the Laser 128. But that $415 figure is a strong argument for //c price cuts. The Laser is a remarkably compatible, competent performer. The Apple market isn't known for hardware bargains, but it has one now.■

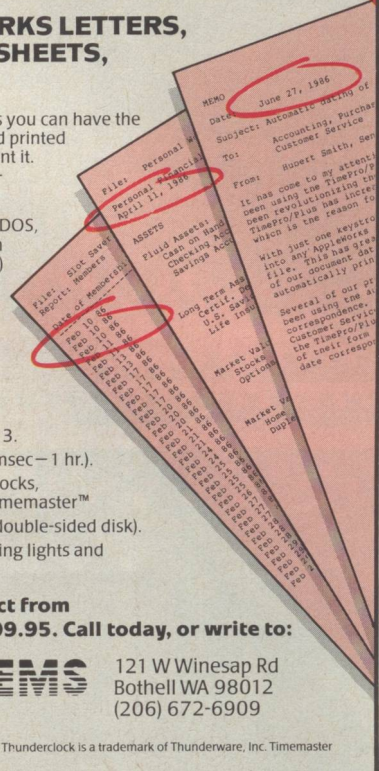*Editor's note: Franklin's new Ace 500, which we'd planned to test alongside the Laser, missed our deadline. We'll review the 500 when we receive a production unit.*