

XIN

## Overclock Libretto 50 to 166Mhz

by [Xin Feng, Ph.D.](#) (updated 12/10/98)

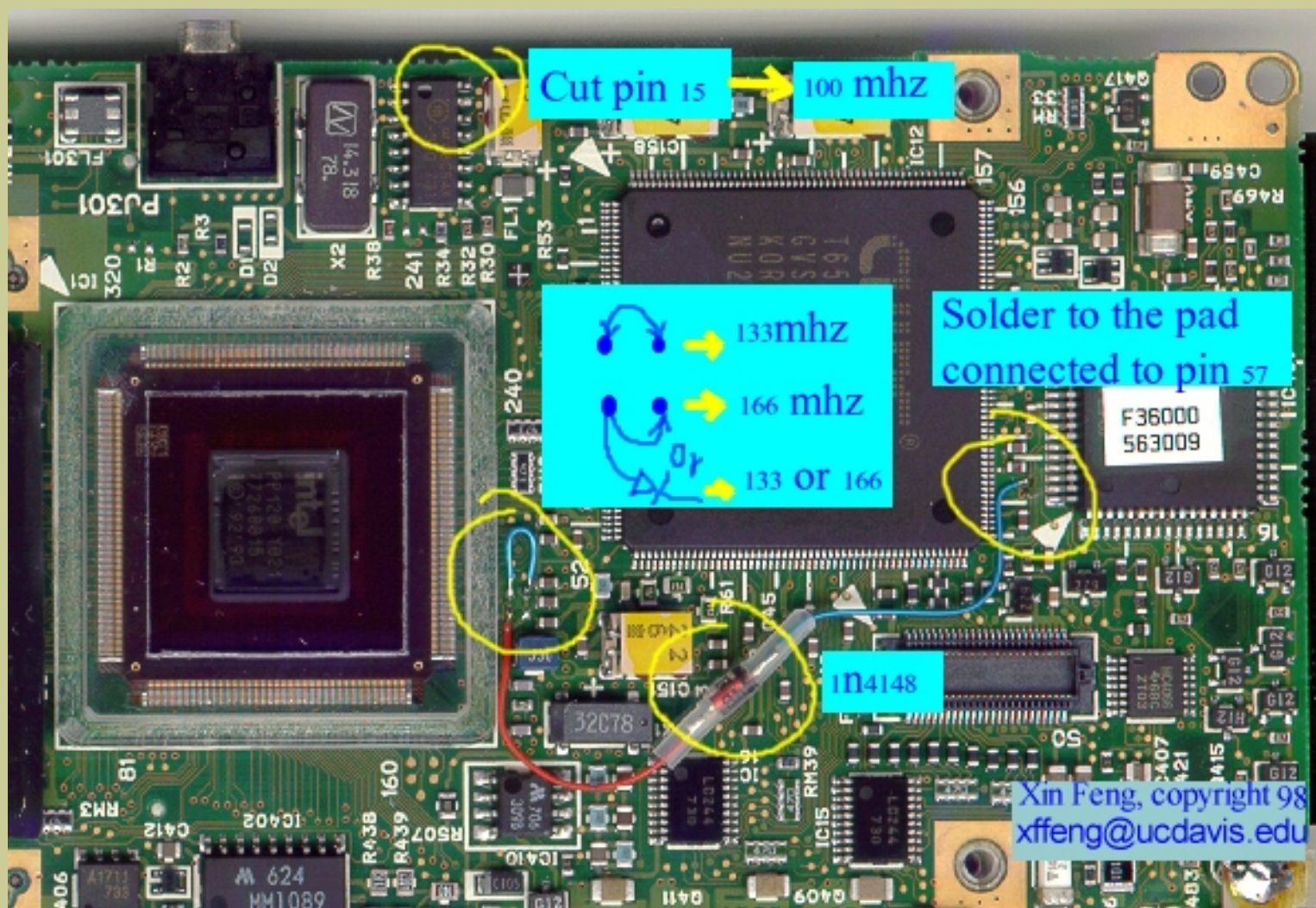
Toshiba's Libretto 50 is the smallest fully functional PC, even smaller than some Windows CEs. As shown in this picture, Its every dimension is less than an ultra-slim Sony Discman portable CD player, except its width, which is only 1/3 longer. Its tiny size does not mean less power, not at all. It is a fully functional Windows 95/NT machine, with a Pentium CPU, 16MB memory (extendable to 32MB for \$67), an 810MB hard disk (extendable to 3.2GB for \$240) and a 640x480 TTF true color screen (support a 1024x768 external monitor). Even better, it is selling for only \$699 now and a refurbished one costs only \$599. It has a type II PCMCIA slot too, so you can insert in a modem, a network or any other PC card. If you want to know more about Libretto 50, please check Toshiba's Web site: <http://www.toshiba.com/>.



So, for less than \$1000, you get a Pentium 166MXX/32MB/3.2GB laptop! Even a desktop with similar configuration costs more than that. Needless to say the normal expansive laptops. And, thanks to its unique Discman-alike figure, a laptop becomes really portable since. Can you image that you carry Pentium powerhouse everywhere with you as easy as carrying a Sony Discman? Yes, it is no longer a dream as with Toshiba's Librettos.

To compare with, a HP color palmtop, with the same size of Libretto, runs only Windows CE and all you can do, with its 16MB ROM (sorry, no hard disk) and its 640 x 240 screen, is actually limited to contact lists and email only. And even worse, it costs \$899, much higher than a Libretto.

Libretto 50 is specified as 75Mhz but actually it uses a 120 MHz CPU now (PP120, Y021, mode 5, step 0C). The following picture shows how to overclock it to 166Mhz. If you use a diode, instead of simple grounding, you can switch between 133 to 166 MHz at start-up by holding the start button till HDD light on. For further information about overclocking and everything about Librettos, check <http://www.tomshardware.com> and <http://libretto.cerfnet.com/~adorable/libretto.html>.



Here are the steps to get 166Mhz:

1. Disconnect or cut off Pin15 to get the 66MHz bus speed and you get 100MHz ( $1.5 \times 66$ );
2. Short cut Pin186 to nearby ground pad to get 133MHz ( $2 \times 66$ );
3. Short cut Pin185 to nearby ground pad, or diode it to Pin57, to reach 166MHz ( $2.5 \times 66$ ).

You can stop at any one of these steps and stay at that speed if you do not want to go too far. I recommend that you stop at step 2 but diode Pin186 to Pin57 instead of shorting-circuit it to ground. This way you have basically a 100Mhz ( $66 \times 1.5$ ) machine that is reliable and significantly faster and you have a 133 option by holding down the start button about 2 seconds while booting. Even my P120 CPU still overheat at 133Mhz or higher under some conditions, such as running the very, very, very hot Megahertz modem, or the CPU-eater FlashSite1.01. 100Mhz at 66MHz bus speed is a big jump over 75Mhz at 50MHz bus speed. Afterwards your speed gain from overclocking to 133 or 166 is not more significant than from adding another 16MB RAM. I highly recommend you add 16MB RAM first for only \$60 (from [www.insight.com](http://www.insight.com)) and, by seeing the big speed improvement and much reduced hard drive cracking, you probably do not feel that you still need to overclock it. Before you order from [Insight](http://www.insight.com), please read a

[complain](#) I got from [David](#).

Here is the test result before and after overclocking:

75 MHz: 1.5\*50, CPUmark32/136, default

100 MHz: 1.5\*66, CPUmark32/181, rock stable, not hotter

133 MHz: 2.0\*66, CPUmark32/205, rock stable, not hotter

166 MHz: 2.5\*66, CPUmark32/222, rock stable, bottom hotter

200 MHz: 3.0\*66, wouldn't start.

You actually do not have to worry about being stopped by a police car for speeding. If your Libretto does overheat at high speed, it will save everything and then turn into sleep (suspended) mode automatically. Wait couple minutes while it is cooling down. Then you can push the start button to wake it up and it will continue to run from where it was stopped without losing anything. Overheating only happened to me at 133Mhz or higher in a hot room in California or Texas while a PCMCIA modem or network card is in use. Most PCMCIA cards runs quite hot, especially Megahertz's that are really hot. My L50 has never overheated at 100MHz yet. I even do a lot of 2X-speed CD recording at 100MHz through a SCSI PCMCIA card and have not got a waste disk yet!

By the way, someone asked me: how you get such a nice picture? Quite easy, if you sit on a scanner, you can get a nice picture of your ass without using a camera or 35mm prints. Just place the object on a scanner and scan it directly as long as it does not have deep depths. It is much more convenient than taking photos first and then scanning the prints. You also get much better quality, better than digital cameras too. Please don't tell this to porn photographers.

Updated: Now it is very hard to get a L50 on the market and L70 dropped under \$1000. It is time to get a L70, but I'll wait for L100's drop for its 800 wide screen. To make L50 really portable, add a 8-hours [external](#) or "[internal](#)" battery!

(11/16/98) You can download the Powerleap CPU Control panel (<http://www.powerleap.com/downloads/plprommx/setup.exe>) which tells you your CPU speed.

(12/10/98) You do not have to have a P120 CPU to be able to overclock. I have been successful with all L50s I touched, many of them were P75.

**WARNING!!! AND DISCLAIMER: OVERCLOCK AT YOUR OWN RISK. BY DOING THIS TOSHIBA WARRENTY IS VOID. YOU -CAN- EASILY DESTROY AND DAMAGE YOUR LIBRETTO BEYOND REPAIR. DO NOT USE OR FOLLOW ABOVE INSTRUCTIONS IF YOU ARE UNSURE OR UNCERTAIN. THIS SITE AND I ARE NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY YOUR OVERCLOCKING. THE INFORMATION ON THIS SITE IS FOR TECHNICAL REFERENCES ONLY.**

