Retro Portable Computers
TRS-80 Model 100 and HP 200LX

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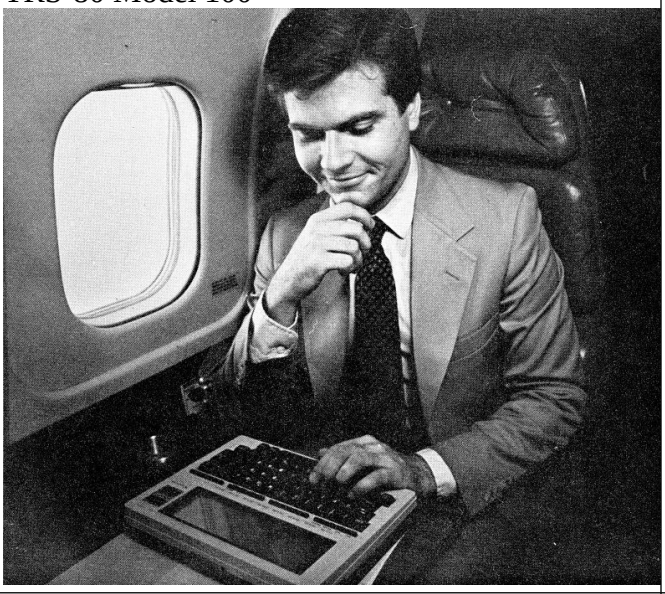
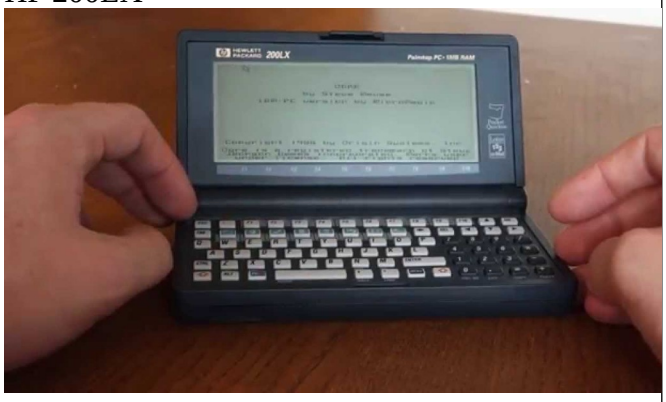
Intro

TRS-80 Model 100	HP 200LX
	
https://en.wikipedia.org/wiki/TRS-80_Model_100	https://en.wikipedia.org/wiki/HP_200LX
Released in 1983	Released in 1994
Other related and compatible models: TRS-80 Model 102 Olivetti M10 NEC PC-8201 NEC PC-8300	Other related and compatible models: HP 95LX (1991) (older version, lower specs, no app launcher or built-in productivity apps) HP 100LX (1993) (older version of productivity apps, lower specs, missing Quicken which comes with 200LX) HP 1000CX (1995) (For DIY/industrial use; removed the built-in productivity apps)

Hardware
• 12 × 8.5 × 2 inches
• 3.1 pounds
• Uses 4×AA alkaline or NiMH cells (no built-in charger)
• About 20 hours per battery set / charge (plus long standby time)
• Intel 80C85 CPU, 2.4MHz
• 8KB to 32KB of RAM shared between working memory and file storage. (AA cell main batteries must have a charge to keep files alive; capacitor keeps RAM powered just long enough to change main batteries.
• 240×64 pixel bitmap graphics or 40×8 text mode
• RS-232 serial port
• Centronics-compatible parallel printer port
• Built-in 300 baud modem connects to phone line
• Bar code reader port
• Read and write files to audiocasette deck (analog hookup with electronic start/stop switch)
• Always-on realtime clock.
	Hardware
	• 6.3 × 3.4 × 1 inches (folded shut)
	• 11 ounces
	• Uses 2×AA alkaline or NiCad or NiMH cells (has on-board charger)
	• About 10 hours per battery set / charge (plus long standby time)
	• 80186-compatible “Hornet” CPU, 8MHz
	• 1 to 4MB of RAM shared between working memory and file storage. (AA cell main batteries or backup button cell must have a charge to keep files alive.)
	• CGA 640×200 graphics
	• PC-Card / PCMCIA expansion slot compatible with dozens of contemporary laptop peripherals. Available cards with MS-DOS support included:
	  ○ CompactFlash adapter cards for storage
	  ○ Ethernet cards
	  ○ High-speed land line and cellular modem cards
	  ○ Wifi
	• RS-232 serial port (requires adapter dongle)
	• Infrared serial port
	• Always-on realtime clock

Software • Custom productivity environment built by Microsoft. (Bill Gates’ last project as lead developer.) • App launcher • Text editor • Telecom • Address Book • Schedule (personal Calendar) • Microsoft BASIC • Home-brew apps could be found throughout the 80s and 90s shared on BBSes.	Software • Customized MS-DOS 5.0 in ROM • Additional graphics API functions in ROM allow native apps to run in graphical “text” mode with larger than 8×8 pixel character cells (to accommodate tiny pixels on the display) • App launcher • Lotus 1-2-3 and Quicken adapted for the tiny screen graphics API • Memo (rich text editor) • Appointments (flat file database) • Phone book (flat file database) • Note taker (flat file database) • “Database” (flat file database with your custom schema) • Calculator • cc:Mail • Data Comm (RS-232 terminal app) • LapLink Remote (RS-232 file sync software)

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- Full MS-DOS environment
  - QBASIC Basic language environment (not adapted for 200LX, uses 8×8 pixel characters in text mode)
- Run PC programs in 80×25 or 40×25 CGA text mode; or 640×200 or 320×200 CGA bitmap mode.
- Home-brew native apps and a few commercial third-party titles could be found through the 90s and 00s on the Internet, BBSes, and advertized in magazines.


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- Convert any document or book into plain text or HTML, and read with “Memo” app or any MS-DOS-compatible web browser.
- Databases in the device’s native format were shared on BBS’s and you can find them now on the SUPER site: < http://mizj.com/Database.html >
- There was a video converter and player available. (Player uses internal PC-speaker for audio.) It’s a party trick you’re not actually going to use seriously.</td>
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TRS-80 Model 100 Demo

TEXT, ADDRESS, SCHEDULE

BASIC

Try inputting this program:

```
10 PRINT "Side A": INPUT A
20 PRINT "Side B": INPUT B
30 PRINT "Side C: "; (A*A+B*B)^0.5
SAVE "TRIANG"
RUN
```

(The command “menu” exits back to the launcher screen.)

HP 200LX Demo

Memo, Note Taker, Phone Book, Lotus 1-2-3

Databases downloaded from SUPER site

TRS-80 Model 100 Resources

- Cloud T – Model 100 emulator < https://bitchin100.com/CloudT/#!/M100Display >
  - Runs in your browser; no installation needed.
- Virtual T for Windows – Model 100 emulator < https://sourceforge.net/projects/virtualt/ >
  - Comes with images of the various models’ ROM software, no additional files needed.
  - Has an IDE / Assembler built in. Read the original manual and start writing new software today!
- Club 100 – Community site with documentation and software: < http://www.club100.org/ >

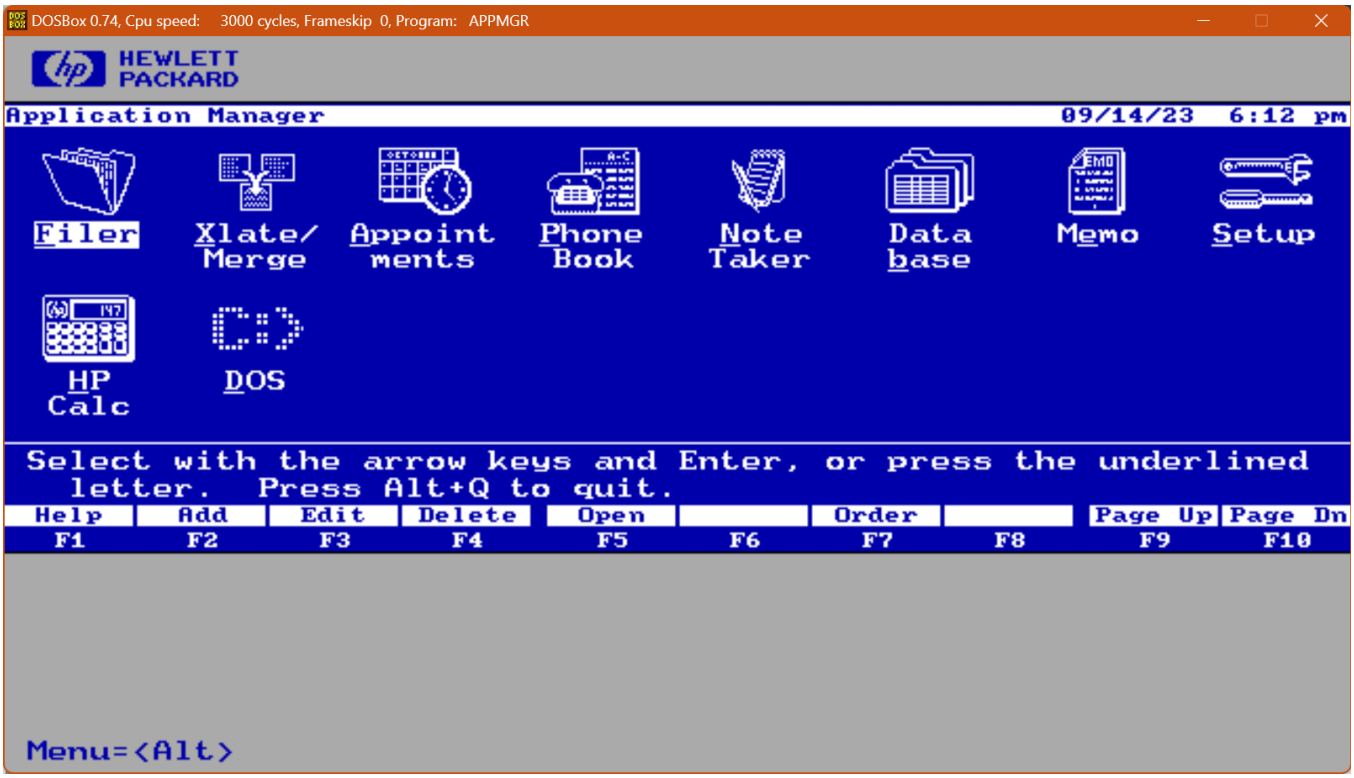
HP 200LX Resources

- SUPER Site – Community site with documentation and software < http://mizj.com/ >
- The HP Palmtop Paper Online – Knowledge base, buy/sell, software < https://www.palmtoppaper.com/ >
- Some details about the computer, and demo videos: < https://www.hpmuseum.net/display_item.php?hw=199 >
- Differences among “HP … LX” models: < https://www.palmtoppaper.com/PTPHTML/16/pt160007.htm >

Setting up TRS-80 Model 100 Emulation on your Desktop

1. Download the Virtual T package and extract it to a workspace folder.
2. Start “VirtualT.exe”.
3. Set Emulation → Model to “M102” (or you can explore the other options)
4. Set Emulation → Speed to “Very CPU Friendly”. For some reason the default “2.4MHz” makes the emulated machine unresponsive.
5. Don’t forget to download a system manual from Archive.org, if you get confused about how the Model 100 machine works.

Setting up HP 200LX Emulation



1. Download “D-Fend Reloaded” < https://dfendreloaded.sourceforge.io/ > for Linux or Windows – a DOSBox front-end, which includes the DOSBox engine itself.
2. Download the HP 200LX official Connectivity Pack, which includes MS-DOS PC ports of the 200LX’s system software and graphics driver: https://mega.nz/file/xRMRFKLC#DhWMzRDeHDS3wj5uAFh0pb7qV24L3gIqfe1ycMjDyPk
3. Create a “Virtual C drive” for the emulated environment, in your host computer’s filesystem. For example “C:\Work\200LX”.
4. Find DOSBox’s default “Virtual C Drive” under “$HOME/D-Fend Reloaded/VirtualHD” and copy that folders “DOSZIP” and “FREEDOS” as subfolders under your work area (“C:\Work\200LX”)
5. Extract the Connectivity Pack archive file as the folder “APPS” under your work area.
6. In D-Fend Reloaded, setup a profile:
    1. Profile → Profile Name: HP 200LX Launcher
    2. Profile → Program file: C:\Work\200LX\APPS\APP200.BAT
    3. Hardware → Graphics → Window Resolution – set according to taste
    4. Hardware → Graphics → Start in fullscreen mode – you probably want this OFF
    5. Hardware → Graphics → Render – “ddraw”
    6. Hardware → Graphics → Scale – “normal3x”
    7. Hardware → Drives – Mount “C:\Work\200LX” as “Letter C”
    8. DOS Environment → Environment Variables → PATH – Set to “Z:\;C:\FREEDOS;C:\APPS;C:\DOSZIP”
7. Launch the profile “HP 200LX Launcher”.