



Thank you for purchasing the DECromancer QBone Dual!

Please read this important information before using your new device.



- After receiving the QBone Dual, or after rough handling or long-term storage, check that the Q-Bus driver SODIMM modules are correctly seated. Gently (but firmly) push each free, middle edge down towards the QBone Dual, then release. The module should bounce back to a horizontal position in its holder.
- **NEVER place the QBone Dual in a C/D slot!** These carry different signals that may damage or destroy the card. Here is a partial list of C/D slots by backplane which must be avoided (“right” is viewed with cards oriented with the component side facing upwards):

Backplane model #	Mounting boxes using this backplane	Slots to avoid
H9273	BA11-NC, -ND, -NE, -NF	All right-side slots
H9276	BA11-SA, -SB, -SC, -SD	All right-side slots
H9278-A, 50-17506-01	BA2232-A, BA123, BA213	Right side of slots 1-3
DDV11-B	H909-C	All “EF” slots

More information and diagrams are available at: <https://tinyurl.com/qbone-installation>

- The QBone Dual comes pre-configured for a non-LSI-11/03 system, with LTC disabled. You may need to change settings for your machine. Follow the printed guide on the card. Here’s some additional info:
 1. For an LSI-11/03 system, turn all four SW1 switches **off**. Otherwise, leave all four SW1 switches **on**.
 2. For system Line Time Clock (LTC):
 - If your system has an LTC feature or front panel switch, keep SW2-4 **off**.
 - If your system does not have a LTC, the QBone Dual can supply it by pushing SW2-4 **on**.
 - The QBone Dual’s LTC is 60 Hz by default.
 - RSX-11M, RSX-11M+, RT-11, and UNIX need an LTC.
 3. SW2-1 and SW2-2 should be left **off** unless you know you need SRUN routed for your machine.
 4. SW2-3 should be left **off** unless you have custom QBone Dual software that drives the BEVNT line.
 5. All SW3 switches are for testing purposes only and should be left **off** during normal use.
- The QBone Dual may be powered by the included Micro-USB cable, or by your Q-Bus backplane, or both. This lets you keep it running while you power cycle your PDP-11 or VAX.

- Using the QBone Dual requires a basic understanding of **ssh** and the Linux command line. If you need a tutorial, we recommend Digital Ocean's Linux Basics: <https://www.digitalocean.com/community/tags/linux-basics>
- After powering up the QBone Dual, connect to it via **ssh** in one of two ways:
 1. via Ethernet: Connect a cable, then check your local router for the IP address it supplied to the emulator. If your router supports Dynamic DNS, you may be able to connect to it via the hostname **qbone**.
 2. via Micro-USB: Connect the supplied micro-USB cable to the emulator and your computer. The emulator should appear at either **192.168.7.1** or **192.168.6.1**, depending on your computer's OS.

Or, connect by serial port in one of two ways:

3. Use the supplied serial cable on port UART1 (J3, closest to the USB connectors), 9600 bps, N-8-1. This port has **root auto-login** (in case you forget your root password).
4. When connected to many PCs via the Micro-USB cable, a serial port may be auto-detected. Most speeds are supported on this port.

The default credentials are:

Login	Password
root	root
debian	temppwd

Change these passwords at your first login with the **passwd** command. Write down your new passwords.

- Your emulator is pre-loaded with DECromancer's optimised QBone Dual image. To update the QBone software on your image, ensure your emulator has Internet access via the Ethernet RJ-45 port, then connect as **root** and enter the following two commands:


```
./update-codes.sh
./update-files.sh
```
- Try the home directory scripts to get started. You always need to specify the bit-width of your processor & backplane with the **-aw** flag, such as **./demo.sh -aw 18** to run these scripts successfully.
 - a. **./demo.sh** tests various features of the QBone Dual.
 - b. **./rt11v5.5sj_d11.sh** emulates maximum RAM, and loads 2 RLo2 disk images.
Boot off of Disk 1 (@10010G) to access the games volume (the most important bit, right?)
- The provided googly eyes may be applied to your QBone Dual on footprints GE1 and GE2, if you wish.

If you have any problems with your hardware, contact us via e-mail at support@decromancer.ca and include your serial number (below the QR code) in your email. For any and all usage questions, join and post in the Google Group at <https://groups.google.com/g/unibone>

Keep those old machines running!