



# Parallella™ Prototype System

## Quick Start Guide

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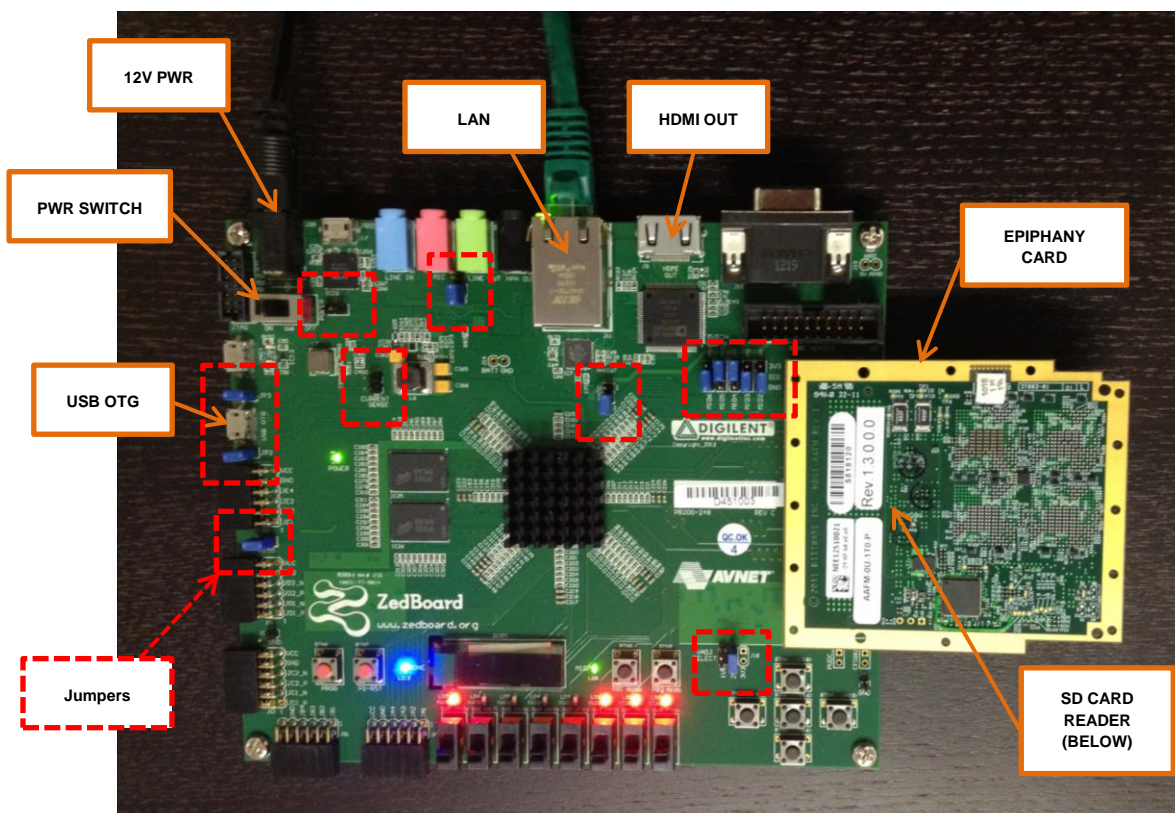


# Congratulations on purchasing the Parallella Prototype system!

Your prototype system includes a 16-core or 64-core Epiphany daughtercard, a Zynq host board (ZedBoard), and a SD Card containing Ubuntu Linux O/S with the software development toolchain.

## Connecting the pieces

1. Carefully unpack all hardware elements from the packaging. It is best to ground yourself before handling the Epiphany card and the ZedBoard.
2. Make sure all the jumpers are inserted in the right place (see image, and list below).
3. Insert the supplied SD Card to the card reader.
4. Mount the Epiphany card to the FMC connector of the ZedBoard.
5. Connect the power supply.
6. If you want to use the system remotely from your PC, you'll need to plug in a network cable and connect it to your LAN.
7. If you want to use the system as a standalone machine, connect a HDMI cable and use the supplied USB cable adapter, connected to the USB OTG connector, for connecting an USB hub with keyboard and mouse. Optionally, plug in a network cable connected to your LAN.
8. Turn the power switch on. The system should now look like the image below.



## Testing the system

9. Log into the system by using either SSH from a remote machine, or directly, using the connected keyboard. The generic username for the Parallella systems is “linaro”, which is also the password. If you are connecting through a LAN router, you’ll need to figure out the ZedBoard’s IP address that was assigned by the DHCP server.
10. There should be a directory `/opt/adapteva/esdk` which contains the current esdk distribution. In `~/.bashrc`, the environment variables `$EPIPHANY_HOME`, `$PATH` and `$LD_LIBRARY_PATH` are updated to point to the esdk installation place. You should check that all the definitions were indeed performed accordingly:

```
$ ls -ltr /opt/adapteva/esdk
$ echo $EPIPHANY_HOME
$ echo $PATH
$ echo $LD_LIBRARY_PATH
```

11. Copy the matmul-16 example to your local work directory:

```
$ mkdir -p test
$ cd test
$ cp -Rd ${EPIPHANY_HOME}/examples/matmul-16 .
$ cd matmul-16
```

12. Now build the project and run the program:

```
$ ./build.sh
$ ./run.sh
```

13. If everything went fine you should now see a message similar to this:

```
Matrix: C[512][512] = A[512][512] * B[512][512]

Seed = 0.000000
Loading program on Epiphany chip...
Writing C[1048576B] to address 00200000...
Writing A[1048576B] to address 00000000...
Writing B[1048576B] to address 00100000...
GO Epiphany! ... Writing the GO!...
Done...
Finished calculating Epiphany result.
Reading result from address 00200000...
Calculating result on Host ... Finished calculating Host result.
Reading time from address 00300044...

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
Verifying result correctness ... C_epiphany == C_host
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

Epiphany - time:      67.9 msec   (@ 600 MHz)
Host      - time:     1678.6 msec (@ 666 MHz)

* * *   EPIPHANY FTW !!!   * * *
```

14. The system is now ready for developing an Epiphany application. For an easy start, follow the guidelines in the matmul-16 or matmul-64 examples. You should find there a host application, controlling the data transfer and execution of code on the Epiphany coprocessor.
15. The “*Epiphany SDK Reference*” and “*Epiphany Architecture Reference*” provide more information regarding the eSDK and the chip hardware architecture and instruction set.

Jumper presets:

Jumper	Name	Status/Connect
JP1		open
JP2		close
JP3		close
JP6	MIO0	close
JP7	MIO2	SIG-GND
JP8	MIO3	SIG-GND
JP9	MIO4	SIG-3V3
JP10	MIO5	SIG-3V3
JP11	MIO6	SIG-GND
JP12	XADC	open
JP13		open
J21	CUR SNS	open
J18	VADJ SEL	2V5

**Welcome to the world of Epiphany Manycores project development!**

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