In our modern era we have developed and innovate technology immensely that we x50 billion computing power from the last 50 years since the 1970s.

Computing Project Proposal

Raspberry Pi Tiny, Portable, and Powerful PC

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APTECH QATAR



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Acknowledgement3

Introduction4

1. Raspberry Pi 4 Model B 8GxBx xRAMx + xCasex + xFanx + xHeatxSinkx + xPowerx xAdapterx + 32x xFATx 32 xGB SD xCard + xMicrox xHDMIx xCablex for xRPIx x4Bx 5

Summary6

References7

Bibliography8

Figures

Figure 1 Raspberry Pi 4 Model B 8GxBx xRAMx + xCasex + xFanx + xHeatxSinkx + xPowerx xAdapterx + 32x xFATx 32 xGB SD xCard + xMicrox xHDMIx xCablex for xRPIx x4Bx 6

**Acknowledgment**

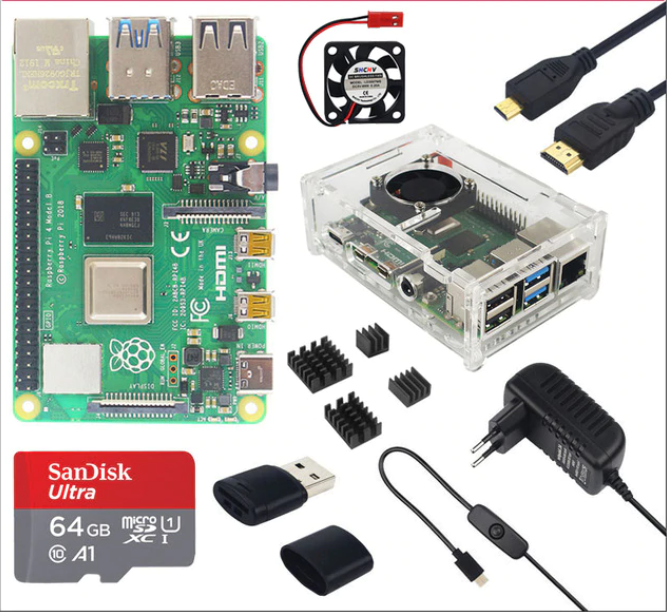
This project would not have been possible with a lot of dedicated special individuals putting their hearts, trust, and faith in me helping me to persevere and be persistent.

I would like to express my special thanks of gratitude to Aptech Qatar Education Centre who gave the amazing opportunity to do this strenuous project on the topic of Project Computing for NCC education, which also helped me in doing a lot of exploration and investigation and I acquired so many new knowledge and skills about Raspberry Pi, Nvidia Jetson Nano, and Asus Tinker Board.

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**Introduction**

In this project, we will be building and assembling xRaspberry xPi s4 8gb model B. It is the most currently powerful xRaspberry xPis costing only $75. We can do a lot of things with it from being just a regular Linux pc, server, VPN, and pen-testing, etc. And to more sophisticated projects like Artificial Intelligence, Machine Learning, and Deep Learning, etc. here is the list of projects for <https://projects.raspberrypi.org/en>. Alternatively, we can use powerful chips like Nvidia Jetson Nano or Asus Tinker box for more sophisticated projects. In the project, we will use the Debian Linux/GNU (Raspbian) Operating System. We will be formatting our SD card as Fat32 since xRaspberryx xPi’sx xbootloaderx, xbuiltx xintox the GPU and non-updatable, only has support reading from FAT filesystems (both FAT16 and FAT32), and is unable to boot from an exFat and NTFS filesystem. We will be setting up xNews xOutx xofx xBoxs xSoftwarex (xNOOBSx) xforx anx xeasyx xOperatingx xSystemx xinstallationx in our xRaspberryx xPix s4x x8gb models Bx.



# Figure 1: a.) xRaspberrysx xPix x4x xModelx xBx x8GxBx xRAMx + xCasex + xFanx + xHeatxSinkx + xPowerx xAdapterx + 32x xFATx 32 xGB SD xCard + xMicrox xHDMIx xCablex for xRPIx x4Bx

1. Specification of Raspberry Pi 4 8gb model B

* Broadcom xBC\_M27\_11, xQuad\_corex\_ xCortex-A\_72x (xARM\_v8x) x64-bit SoC\_@\_2.5GHz
* x8\_GB xLPDDR\_4-3200x SD\_RAM
* x2.4x\_GHz and x5.0\_GHz \_IEEE \_x802.\_11acx wireless, Bluetooth x5.0\_, BLE
* xGigabit \_xEthernet
* x2\_USB \_x3.0 ports; x2\_xUSBx \_x2.0x xportsx.
* xRaspberryx sxPix standard \_x40 xpinx sxGPIO\_ headerx (xfullyx xbackwards xcompatiblex with xpreviousx xboardsx)x
* \_x2 xmicro\_xHDMI ports (up to x\_4k\_p60 supported)
* x2-xlanex\_MxIPI\_xDSIx xdisplay portx
* x2-xlanex\_xMIPIx\_xCSIx xcamera xport
* x4\_xpolex x\_xstereox\_audiox and-xcompositex-xvideo-xport
* \_xH.265x (x4k\_p60 xdecode), xH264 (x1080\_p60 decode, x1080\_p30 encode)
* OpenGL\_ES\_x3.0x xgraphics
* xMicrox\_xSDx xcard xslot xfor xloading xoperating xsystem xand xdata xstorage
* x5V\_xDC xvia \_xUSB-C xconnector (xminimum x3A\_\*)
* x5V\_xDC xvia \_xGPIO xheader (xminimum x3A\_\*)
* xPower\_over\_Ethernet (xPoE) xenabled (xrequires\_xseparate \_xPoE \_xHAT)
* xOperating temperature: x0 – x50 xdegrees\_C\_ambient

\* xA xgood xquality x\_2.5A xpower xsupply xcan xbe xused xif xdownstream xUSB xperipherals xconsume xless xthan x\_500mA inx xtotal.

1. Summary

* In our modern era, we have developed and innovate technology immensely that we x50 billion computing power from the last 50 years since the 1970s.
* There’s a lot of Raspberry Pi alternatives available in the market.
* Raspberry Pi can have a lot of uses from regular Linux pc, server, VPN, and pen-testing, etc. And to more sophisticated projects like Artificial Intelligence, Machine Learning, and Deep Learning, etc. here is the list of projects for <https://projects.raspberrypi.org/en>.
* Computers got more portable and compact in the last 57 years since 1943 first computer ENIAC invention occupying 1x,800 squarex xfeet and xused xabout 18,00 xvacuum xtubes, xweighing xalmost x50 tonsx.
* In upcoming future, additional powerful single-board computers will have further capabilities than our current and modern PCs. NVIDIA TITAN V and AMD Radeon RX 5700 likely will have supports for it.

**References:**

**Bibliography**

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