**1.1 I am using Code Composer Studio 12.8.0.** Make an account at my.ti.com and download CCS. My environment is Eclipse (going out of style), not Theia (upcoming). I do not like the Cloud Compiler. You are free to have a different (if incorrect) opinion on Cloud Compilers.

You will need to install the compiler for MSP432 (ARM) chips but don’t have to install the support for the rest of the chips.

The primary board for Embedded Systems will be the MSP-EXP432E401Y. TI has generously provided a box of them for you to use.

[https://www.ti.com/tool/MSP-EXP432E401Y?keyMatch=&tisearch=search-everything&usecase=hardware](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ti.com%2Ftool%2FMSP-EXP432E401Y%3FkeyMatch%3D%26tisearch%3Dsearch-everything%26usecase%3Dhardware&data=05%7C02%7Csbishal%40ttu.edu%7C587326d109ba4b0b965208dd93c7ef12%7C178a51bf8b2049ffb65556245d5c173c%7C0%7C0%7C638829209088282776%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=cXJC4rE7MLxnMa9oXfPWQhl%2Fa9TyX%2BuTDFSVVe4Hc9I%3D&reserved=0)

Also get putty

[https://www.putty.org/](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.putty.org%2F&data=05%7C02%7Csbishal%40ttu.edu%7C587326d109ba4b0b965208dd93c7ef12%7C178a51bf8b2049ffb65556245d5c173c%7C0%7C0%7C638829209088296108%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=Z3yOJyMPFw%2BhzYJQ%2BygLT7UTrXksN7D5DKLd7%2FapUBY%3D&reserved=0)

Launchpad User’s Guide w/ schematics [https://www.ti.com/lit/pdf/slau748](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ti.com%2Flit%2Fpdf%2Fslau748&data=05%7C02%7Csbishal%40ttu.edu%7C587326d109ba4b0b965208dd93c7ef12%7C178a51bf8b2049ffb65556245d5c173c%7C0%7C0%7C638829209088304676%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=sbFyr1O6X30jIaFC74mSH%2BbZaxa0Dw92%2FCIsxteVVko%3D&reserved=0)

Chip data sheet [https://www.ti.com/lit/pdf/slasen5](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ti.com%2Flit%2Fpdf%2Fslasen5&data=05%7C02%7Csbishal%40ttu.edu%7C587326d109ba4b0b965208dd93c7ef12%7C178a51bf8b2049ffb65556245d5c173c%7C0%7C0%7C638829209088313246%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=WfW5IcGNaupKRISW5r%2B2hp7%2FsSSq0JIvvjPe3wplyuI%3D&reserved=0)

**1.2 SimpleLink SDK** 4.20.00.12 [https://dev.ti.com/tirex/explore/node?node=A\_\_AC4fea1GvZOsPa2Xi4z3Gw\_\_com.ti.SIMPLELINK\_MSP432E4\_SDK\_\_J4.hfJy\_\_LATEST](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdev.ti.com%2Ftirex%2Fexplore%2Fnode%3Fnode%3DA__AC4fea1GvZOsPa2Xi4z3Gw__com.ti.SIMPLELINK_MSP432E4_SDK__J4.hfJy__LATEST&data=05%7C02%7Csbishal%40ttu.edu%7C587326d109ba4b0b965208dd93c7ef12%7C178a51bf8b2049ffb65556245d5c173c%7C0%7C0%7C638829209088322035%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=0ZjIs8e3UcTeAMP7WumOYm2Mh1uxz4OouqLABc74ujY%3D&reserved=0)

We will use a daughter board, the BOOSTXL-AUDIO. TI has generously provided a box of them for you as well.

[https://www.ti.com/tool/BOOSTXL-AUDIO?keyMatch=&tisearch=search-everything&usecase=hardware](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ti.com%2Ftool%2FBOOSTXL-AUDIO%3FkeyMatch%3D%26tisearch%3Dsearch-everything%26usecase%3Dhardware&data=05%7C02%7Csbishal%40ttu.edu%7C587326d109ba4b0b965208dd93c7ef12%7C178a51bf8b2049ffb65556245d5c173c%7C0%7C0%7C638829209088330761%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=VNtkq8hvUyGZxqYSwejp8cp7rBosqCFLngHsRaNKYAo%3D&reserved=0)

BOOSTXL-AUDIO User’s Guide w/ schematics [https://www.ti.com/lit/pdf/slau670](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.ti.com%2Flit%2Fpdf%2Fslau670&data=05%7C02%7Csbishal%40ttu.edu%7C587326d109ba4b0b965208dd93c7ef12%7C178a51bf8b2049ffb65556245d5c173c%7C0%7C0%7C638829209088339174%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=zTathXWCj7SLmZ0GtlcjG0Xq7h9leQGBHXmNO8qle34%3D&reserved=0)

Have a source code repository (e.g. Git) set up on a separate piece of hardware (e.g. OneDrive) from your development unit. As professional engineers, you have no excuse to lose more than one day’s work product due to a computer crash. Commit your active work every day. [https://git-scm.com/downloads](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fgit-scm.com%2Fdownloads&data=05%7C02%7Csbishal%40ttu.edu%7C587326d109ba4b0b965208dd93c7ef12%7C178a51bf8b2049ffb65556245d5c173c%7C0%7C0%7C638829209088347773%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=mU0WsHRVUYditMNXULB6fuvqpQQ3v8uAL3XZXDKHw1c%3D&reserved=0)

1. **PC Setup**

|  |  |  |
| --- | --- | --- |
| Step | Action | Why/Comment/Tip |
| 1.1 | Install CCS 12.8.0 and, during the installer, tick “**MSP432E4 device support**” plus the **TI ARM compiler**. + Install the SimpleLink™ MSP432E4 SDK (latest 4.x) via **TI Resource Explorer** or the standalone installer. | Ensures templates, linker scripts and the correct compiler are present. + The SDK provides driverlib, SysConfig and ready‑made examples. - [Link](https://software-dl.ti.com/msp430/esd/MSPM0-SDK/latest/docs/english/tools/ccs_ide_guide/doc_guide/doc_guide-srcs/ccs_ide_guide.html?utm_source=chatgpt.com)  SDK is automatically installed. |
| 1.2 | Plug the LaunchPad’s Debug micro‑USB into your PC. Windows (or macOS/Linux) installs two XDS‑110 COM ports automatically. | One port is the back‑channel UART you’ll talk to from PuTTY. The board’s datasheet confirms this. |
| 1.3 | Open Device Manager → Ports (COM & LPT) and note the COM number labelled “XDS110 Class Application/User UART”. | You’ll need this for PuTTY. |

|  |
| --- |
| Creating a project from scratch is not recommended since creating the project from scratch doesn’t add all of the necessary device support files by default. To start from a blank project, TI recommends importing the Empty Driverlib example project from the SDK |
| Some examples in the MSPM0 SDK have SysConfig support. SysConfig is an intuitive and comprehensive collection of graphical utilities for configuring pins, peripherals, radios, subsystems, and other components. SysConfig helps you manage, expose, and resolve conflicts visually so that you have more time to create differentiated applications. |
| importing the Empty Driverlib example: |
|  |

1. **Creating a Project From Scratch**
2. **Test UART in PuTTY**

|  |
| --- |
| 1. Run (Debug) → CCS loads the binary and halts at main(). 2. Launch PuTTY   Connection type: Serial  Serial line: COMxx noted earlier  Speed: 115200   1. Press Resume/F8 in CCS.   If your main() contains a simple UART\_write() of “Hello”, you should see it in PuTTY |