

[Courseware \(/courses/UTAustinX/UT.6.01x/1T2014/courseware\)](/courses/UTAustinX/UT.6.01x/1T2014/courseware)

[Course Info \(/courses/UTAustinX/UT.6.01x/1T2014/info\)](/courses/UTAustinX/UT.6.01x/1T2014/info)

[Discussion \(/courses/UTAustinX/UT.6.01x/1T2014/discussion/forum\)](/courses/UTAustinX/UT.6.01x/1T2014/discussion/forum)

[Wiki \(/courses/UTAustinX/UT.6.01x/1T2014/course_wiki\)](/courses/UTAustinX/UT.6.01x/1T2014/course_wiki)

[Progress \(/courses/UTAustinX/UT.6.01x/1T2014/progress\)](/courses/UTAustinX/UT.6.01x/1T2014/progress)

[Questions \(/courses/UTAustinX/UT.6.01x/1T2014/a3da417940af4ec49a9c02b3eae3460b/\)](/courses/UTAustinX/UT.6.01x/1T2014/a3da417940af4ec49a9c02b3eae3460b/)

[Syllabus \(/courses/UTAustinX/UT.6.01x/1T2014/a827a8b3cc204927b6efaa49580170d1/\)](/courses/UTAustinX/UT.6.01x/1T2014/a827a8b3cc204927b6efaa49580170d1/)

The external devices attached to the microcontroller provide functionality for the system. An **input port** is hardware on the microcontroller that allows information about the external world to be entered into the computer. The microcontroller also has hardware called an **output port** to send information out to the external world. Most of the pins shown in Figure 2.11 are input/output ports.

An **interface** is defined as the collection of the I/O port, external electronics, physical devices, and the software, which combine to allow the computer to communicate with the external world. An example of an input interface is a switch, where the operator toggles the switch, and the software can recognize the switch position. An example of an output interface is a light-emitting diode (LED), where the software can turn the light on and off, and the operator can see whether or not the light is shining. There is a wide range of possible inputs and outputs, which can exist in either digital or analog form. In general, we can classify I/O interfaces into four categories

Parallel - binary data are available simultaneously on a group of lines

Serial - binary data are available one bit at a time on a single line

Analog - data are encoded as an electrical voltage, current, or power

Time - data are encoded as a period, frequency, pulse width, or phase shift

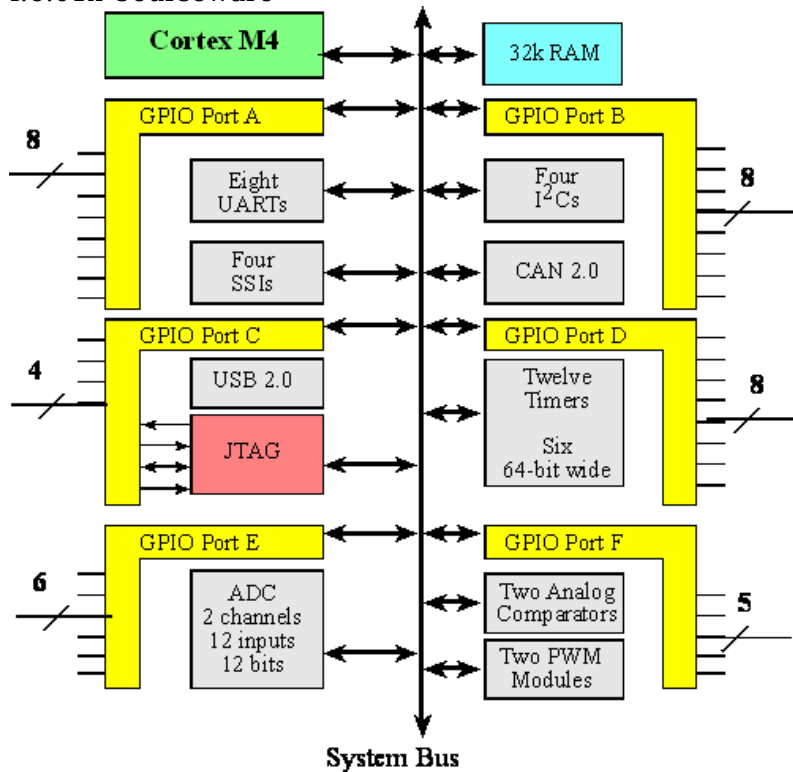


Figure 2.11. Architecture of TM4C123 microcontroller.

Help

Reading Assignment 2:

Download and open the data sheet for the TM4C123 microcontroller (</c4x/UTAustinX/UT.6.01x/asset/tm4c123gh6pm.pdf>)

- 1) Look at the block diagram on page 46 to see how much RAM and ROM there is.
- 2) Look on page 647 to see how many I/O pins there are.



About (<https://www.edx.org/about-us>) Jobs (<https://www.edx.org/jobs>)
 Press (<https://www.edx.org/press>) FAQ (<https://www.edx.org/student-faq>)
 Contact (<https://www.edx.org/contact>)



EdX is a non-profit created by founding partners Harvard and MIT whose mission is to bring the best of higher education to students of all ages anywhere in the world, wherever there is Internet access. EdX's free online MOOCs are interactive and subjects include computer science, public health, and artificial intelligence.



(<http://www.meetup.com/edX-Global-Community/>)



(<http://www.facebook.com/EdxOnline>)



(<https://twitter.com/edXOnline>)



01/28/2014 11:17 AM

(<https://plus.google.com/108235383044095082735/posts>)

