
AT06467: Getting Started with SAM D10/D11

Atmel 32-bit Microcontrollers**Introduction**

This application note aims at helping the reader to get started with the Atmel[®] SAM D10/D11 ARM[®] Cortex[®]-M0+ based microcontroller.

Features

- Getting started with Atmel SAM D10/D11 microcontrollers and tools
- Atmel SAM D11 Xplained PRO and Atmel Studio 6.2 getting started

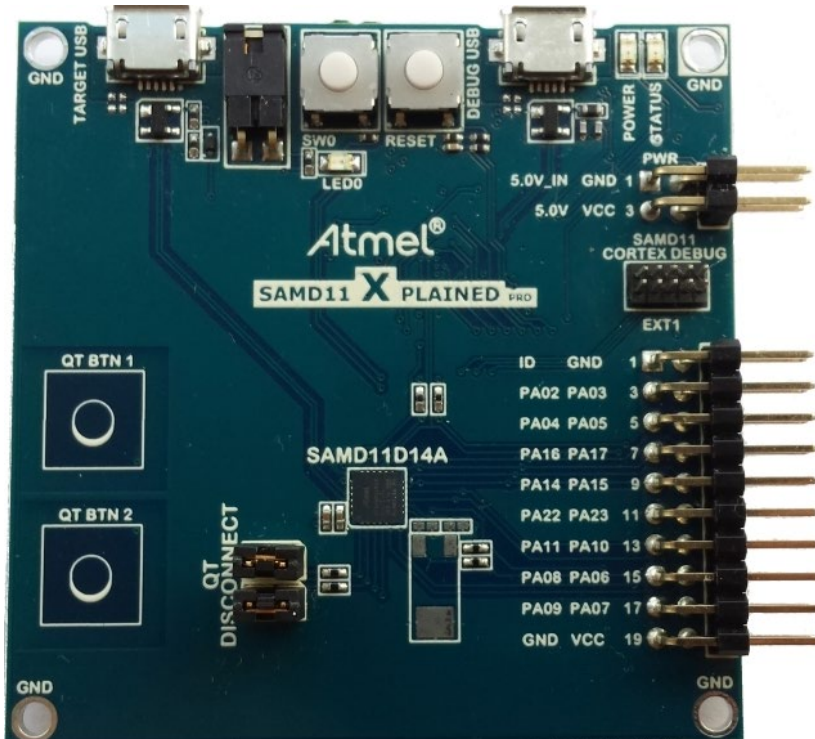
1 Getting the Device Datasheet

Web page: <http://www.atmel.com/products/microcontrollers/arm/sam-d.aspx?tab=overview>

Document: Atmel SAM D11 Datasheet (summary, complete) (.pdf)

- Select the required device (i.e. ATSAMD11D14A) and get the latest datasheet (.pdf file). There are two versions:
 - Complete version (includes all peripheral descriptions and electrical characteristics)
 - Summary version (includes Ordering Information, pinout, and Packaging Information)

2 Get the SAM D11 Xplained Pro Evaluation Kit



Web page: <http://www.atmel.com/products/microcontrollers/arm/sam-d.aspx?tab=tools>

Get the kit: <http://store.atmel.com>

Document/file:

- SAM D11 Xplained Pro User Guide application note (.pdf)

Key features:

- SAMD11D14A microcontroller
- One mechanical reset button
- One mechanical programmable button (SW0)
- One Yellow user LED (LED0)
- USB Device interface function
- Two QTouch® Buttons
- 32.768kHz crystal
- Standard Cortex Debug connector

- One Xplained Pro extension headers (EXT1)
- USB powered
- Supported with application examples in Atmel Software Framework
- Embedded Debugger
 - Auto ID for board identification in Atmel Studio 6.2
 - One yellow status LED
 - One green board power LED
 - Symbolic debug of complex data types including scope information
 - Programming
 - Data Gateway Interface: USART, TWI, four GPIOs
 - Virtual COM port (CDC)

The SAM D11 Xplained Pro User Guide application note covers how to power the kit, the detailed information of the on-board components, extension interface, and the hardware guide.

3 Get the Tools

Atmel Studio 6.2 is the preferred IDE to get started with the SAM D11 device and GCC compiler. Atmel Software Framework (ASF) provides SAM D11 peripheral drivers and example projects. IAR™ compiler is supported as well.

3.1 Get Atmel Studio 6

Web page: www.atmel.com/atmelstudio

Document/file:

- Atmel Studio 6.2 installer (.exe)

Atmel Studio 6.2 is the IDE for developing and debugging firmware for the SAM D11 microcontroller.

3.2 Get IAR Embedded Workbench for ARM

Web page: <http://www.iar.com/en/Products/IAR-Embedded-Workbench/ARM/>

Document/file:

- IAR installer for ARM

3.2.1 Get SAM D11 Xplained Pro Embedded Debugger Software (Segger J-Link)

Web page: <http://www.segger.com/jlink-software.html>

Document/file:

- J-Link software

This software is required to use the SAM D11 Xplained Pro embedded debugger with IAR IDE.

3.3 Get Atmel Software Framework (ASF)

Web page: www.atmel.com/asf

Document/file:

- ASF update for Atmel Studio (.vsix) from ASF web page
- ASF update through Atmel Gallery <https://gallery.atmel.com/>
- ASF update through Tools>Extension Manager from Atmel Studio
- ASF standalone package for GCC makefile and IAR users
- ASF: Getting started (.pdf)
- ASF: Reference Manual (.pdf)

ASF online documentation for available API and examples can be found at <http://asf.atmel.com>.

4 Atmel Studio 6.2 Users Getting Started

Requirements:

- Atmel Studio 6.2 or above installed
- ASF version 3.19.0 or above installed
- SAM D11 Xplained Pro board connected to Atmel Studio 6.2 through the embedded debugger USB connector. The kit will be powered by the USB.

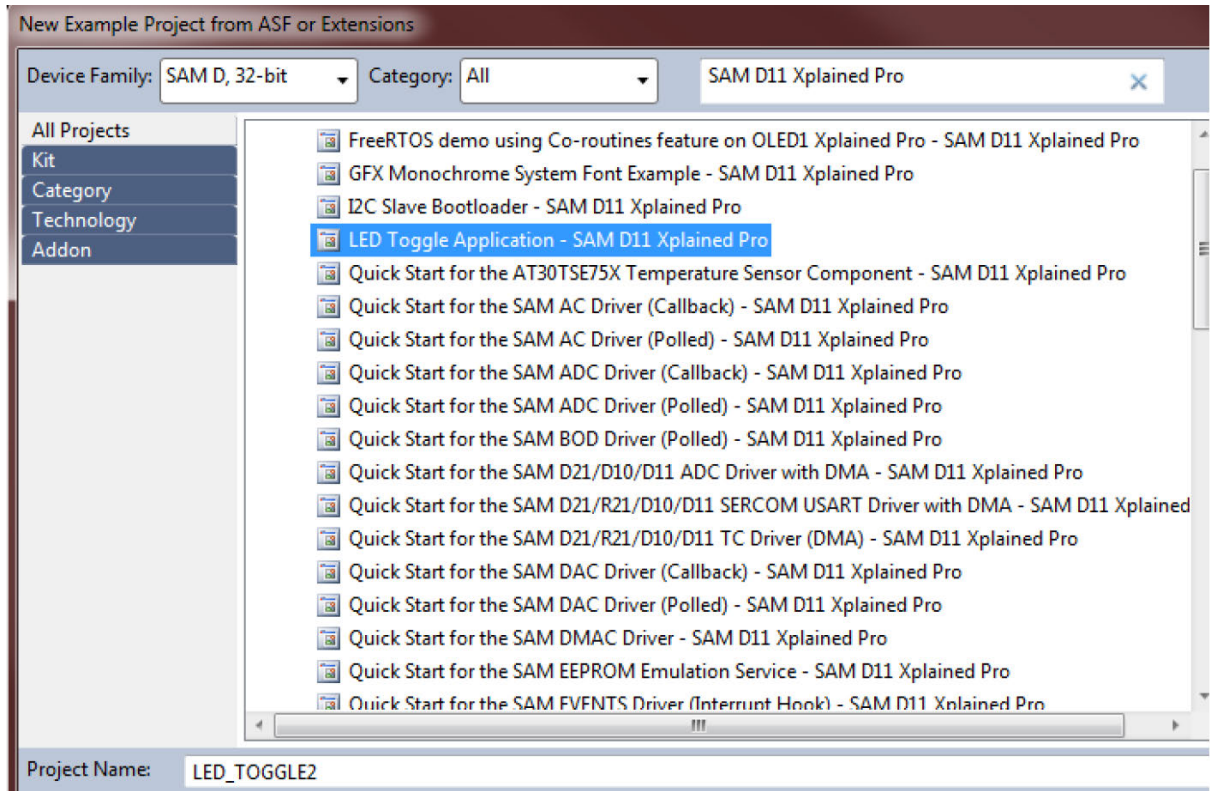
Getting started with Atmel Studio 6.2, ASF, and SAM D11 Xplained Pro:

- Launch Atmel Studio 6.2
- Connect the SAM D11 Xplained Pro board to the PC using a USB cable

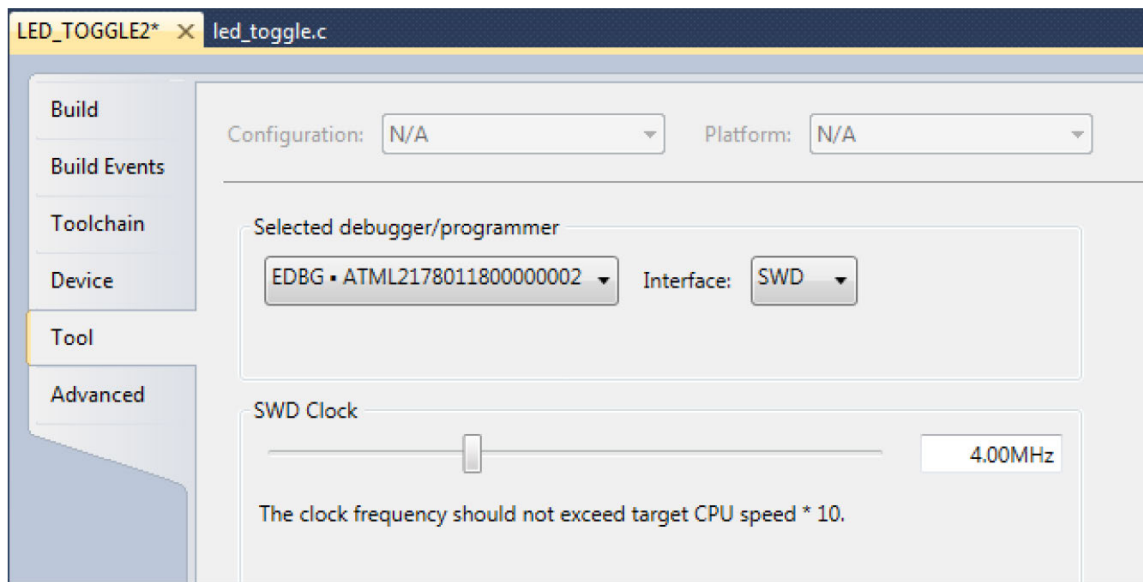
A page on SAM D11 Xplained Pro description will open in Atmel Studio.

This page contains external link to Device Technical Documentation, Datasheet, Kit user guide, and Kit specific details like serial number, target name, etc. Also, there will be an option to open ASF example projects.

- To open ASF examples, click “New Example Project...”
- Select one of the examples (e.g. “Delay Service Example”), press OK, and accept the license agreement. Then the project will be created and opened.



- Open project properties (Project -> Properties or shortcut Alt + F7)
- In Tool view, set selected debugger/programmer to XPRO-EDBG and interface to SWD



- Build the project: Build -> Build solution or shortcut F7
- To load the code in the SAM D11 Xplained Pro and debug, select Debug -> Start debugging and break (shortcut Alt + F5)
- The application is programmed and the debugger breaks in main
- To run the code, select Debug -> Continue (shortcut F5)

5 What's next?

- Atmel Studio videos: www.atmel.com/atmelstudio
- Atmel Studio help: Help -> View Help (Ctrl+F1)
- ASF Getting Started: www.atmel.com/asf
- ASF online documentation: asf.atmel.com
- ASF Reference manual: asf.atmel.com
- Technical documentation for various products: www.atmel.no/webdoc

6 Revision History

| Doc Rev. | Date | Comments |
|----------|---------|---------------------------|
| 42362A | 08/2014 | Initial document release. |



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