

# Getting Started with the TRAVEO™ Family S6J3120 Series

## About this document

### Scope and purpose

AN209845 describes the development tools available for the TRAVEO™ Family S6J3120 series.

### Associated Part Family

**TRAVEO™ Family S6J3120**

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## Introduction

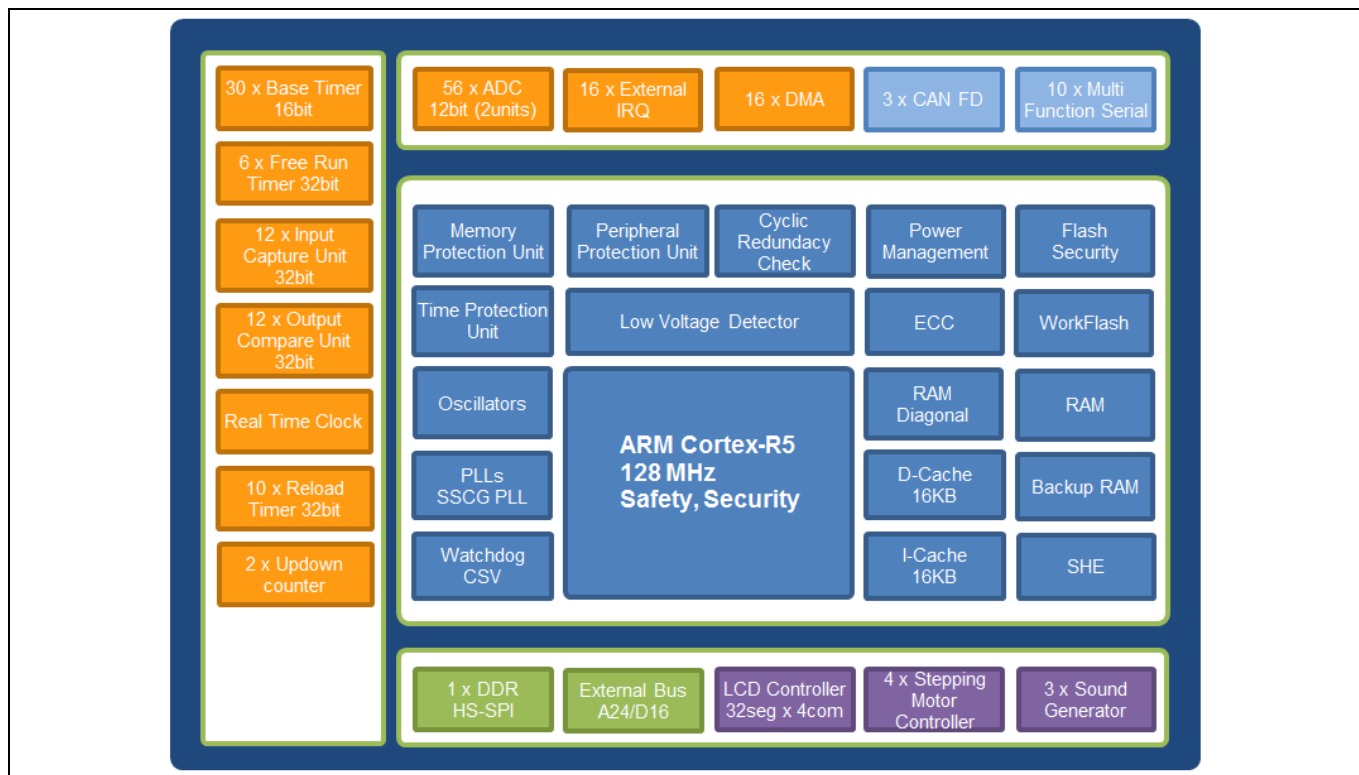
### 1 Introduction

This application note describes the development environment and tools for the TRAVEO™ Family S6J3120 series. The series includes an Arm® Cortex®-R5 CPU core, Secure Hardware Extension (SHE), CAN FD, memory, and analog and digital peripheral functions in a single chip supplied by a 5-V single power supply. The product lineup of the S6J3120 series features 144-pin packages and memory size variations. Refer to the [Hardware Manual and Datasheet](#) for more details.

## TRAVEO™ Family S6J3120 series feature set

## 2 TRAVEO™ Family S6J3120 series feature set

The TRAVEO™ S6J3120 Series features a single Arm® Cortex®-R5. The S6J3120 incorporates the high-performance CAN FD interface for enhanced in-vehicle networking and is focused on cost-sensitive automotive dashboard cluster applications. **Figure 1** shows many peripheral resources.



**Figure 1** TRAVEO™ Family S6J3120 series block diagram

The major features of the S6J3120 series are listed here. For more information, see the [Related Documents](#).

- Up to 128 MHz Arm® Cortex®-R5 core
- Includes a DMA controller and a SHE (Secure Hardware Extension) for encryption engine
- Includes Flash memory for code and data, and System SRAM, Backup RAM, and TCRAM  
Flash memory for program code: up to 1MB, for work data: 112KB  
System SRAM: 16KB, Backup RAM: 8KB, TCRAM: up to 64KB
- Includes 12-bit A/D Converter, CAN FD, several timers, MFS (LIN, UART, CSIO, I<sup>2</sup>C), LCDC, SMC, and peripheral functions
- Includes JTAG I/F to debug and program user programs

## Development environment and tools

### 3 Development environment and tools

#### 3.1 Evaluation board

Cypress provides a wealth of evaluation boards to help you get started using an MCU. The S6J3120 series evaluation board works alone, but it also connects to a main board. The main board is common to the FR81S Family products and F<sup>2</sup>MC-16FX Family MB96600 Series. This board has useful ports including LIN, CAN, UART, and more.

Contact your sales representative or [Cypress Technical Support](#) if you want to buy the evaluation board.

**Table 1** provides details about the S6J3120 series evaluation board. **Table 2** provides details about the main board.

**Table 1 S6J3120 series evaluation boards**

Part number	S6T3J300121A144A2
<b>Description</b>	Evaluation board for S6J312AHAC mounted
<b>Pins</b>	144
<b>CAN FD port</b>	2ch
<b>LIN port</b>	1ch
<b>UART port</b>	1ch
<b>Debug port</b>	JTAG Arm® 20
<b>Switches</b>	RESET, NMI, INT

**Table 2 Evaluation Board (main board)**

Part number	MB2198-760-E
<b>Description</b>	MCU evaluation board (main Board) Connect to the S6J3120 series evaluation board and F <sup>2</sup> MC-16FX/FR Family board
<b>Connector</b>	LIN I/F 2ch, CAN I/F 2ch, RS I/F 2ch, USB
<b>Switches</b>	Reset, NMI, INT

For more information about the main board, see the [Operation Manual](#).

#### 3.2 Sample software

Contact your sales representative or [Cypress Technical Support](#), if you want to use the sample software.

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**Development environment and tools****3.3 Debugging tools**

Debugging tools are provided by third parties, as listed in [Table 3](#) Cypress provides sample software (template project and sample driver) for each tool. The template project includes I/O header files, startup setting, and some sample sources. It is very helpful to start using the S6J3120 series with the evaluation board and tools. The sample driver includes some sources for peripheral features of the S6J3120 series.

*Note: Cypress software such as AUTOSAR is designed for using with MULTI of Green Hills Software.*

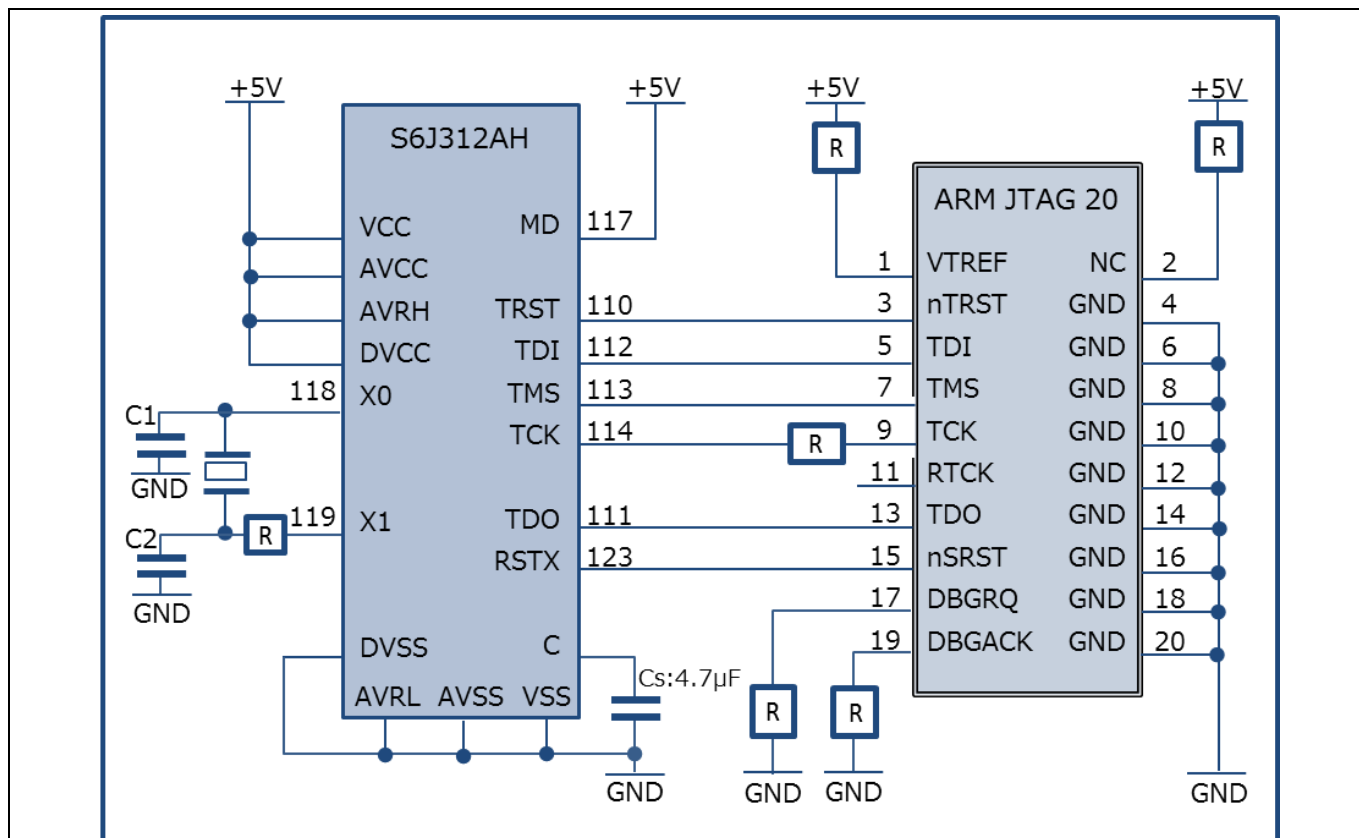
**Table 3 Debugging tools**

Vendor	Software (Integrated development environment)	Hardware (Debugging tools)
Green Hills Software	MULTI v2013.5.4 or later	Green Hills probe
IAR Systems	IAR Embedded Workbench for Arm® (EWARM) v7.30.4 or later	I-jet

## Connection diagram and operation modes

### 4 Connection diagram and operation modes

The S6J3120 series has JTAG ports to connect with a debugging tool, but the nSRST JTAG port is not supported in this series. Therefore, nSRST should be connected to the RSTX port of this product, if needed. [Figure 2](#) shows a basic connection diagram for S6J312AH.



**Figure 2** S6J312AH basic connection diagram with Arm® JTAG 20

The S6J3120 series has a User mode and Serial Write modes. [Figure 2](#) shows the User mode connections. The Serial Write modes use P020 and P022 with the MD port. [Table 4](#) lists the operation modes combined with the MD, P020, and P022 ports.

The Serial Write modes (sync and async) support writing a user program to the flash memory included in the MCU through the UART connection. The PC and target MCU are connected via a serial cable. Cypress provides flash program software that works on the PC, and both the main and sub evaluation boards have a UART port. Contact your sales representative or [Cypress Technical Support](#) if you want to evaluate the flash program software.

In addition, a flash memory programmer provided by Yokogawa Digital Computer (YDC) supports writing a user program to the flash memory using a serial port in the S6J3120 series.

**Table 4** Operation modes

Operation mode	MD	P020	P022
User mode	1	–	–
Serial Write mode (sync)	0	1	0
Serial Write mode (async)	0	1	1

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## Summary

### 5 Summary

Cypress provides evaluation boards and sample software to help you get started with TRAVEO™. To evaluate the S6J3120 series evaluation boards, contact your sales representative or [Cypress Technical Support](#).

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## Related documents

### 6 Related documents

- [S6J3120 Series 32-bit Microcontroller TRAVEO Family Datasheet](#)
- [S6J3120 Series 32-bit Microcontroller TRAVEO Family Hardware Manual](#)



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## Revision history

### Revision history

Document version	Date of release	Description of changes
**	2016-09-01	New application note.
*A	2017-07-27	Updated Cypress Logo and Copyright.
*B	2021-06-21	Updated to Infineon template.

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**Document reference**

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