Getting Started with the Traveo™ Family S6J3200 Series

About this document

Scope and purpose

AN209861 describes the development tools available for the Traveo™ Family S6J3200 Series.

Associated Part Family

Traveo Family S6J3200 Series

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1 Introduction

This application note describes the development environment and tools to get started with the Traveo Family S6J3200 Series. The series includes an ARM® Cortex®-R5F CPU core, 2D/3D graphics core, CAN FD, memory, and analog and digital peripheral functions in a single chip supplied by 5-V, 3.3-V, and 1.2-V power supply. The product lineup of the S6J3200 series features 216-pin and 208-pin packages and memory size variations. Refer to the **Hardware Manual and Datasheet** for more details.

2 Traveo Family S6J3200 Series Feature Set

The Traveo Family S6J3200 Series has a cluster feature and other resources, as **Figure 1** shows:

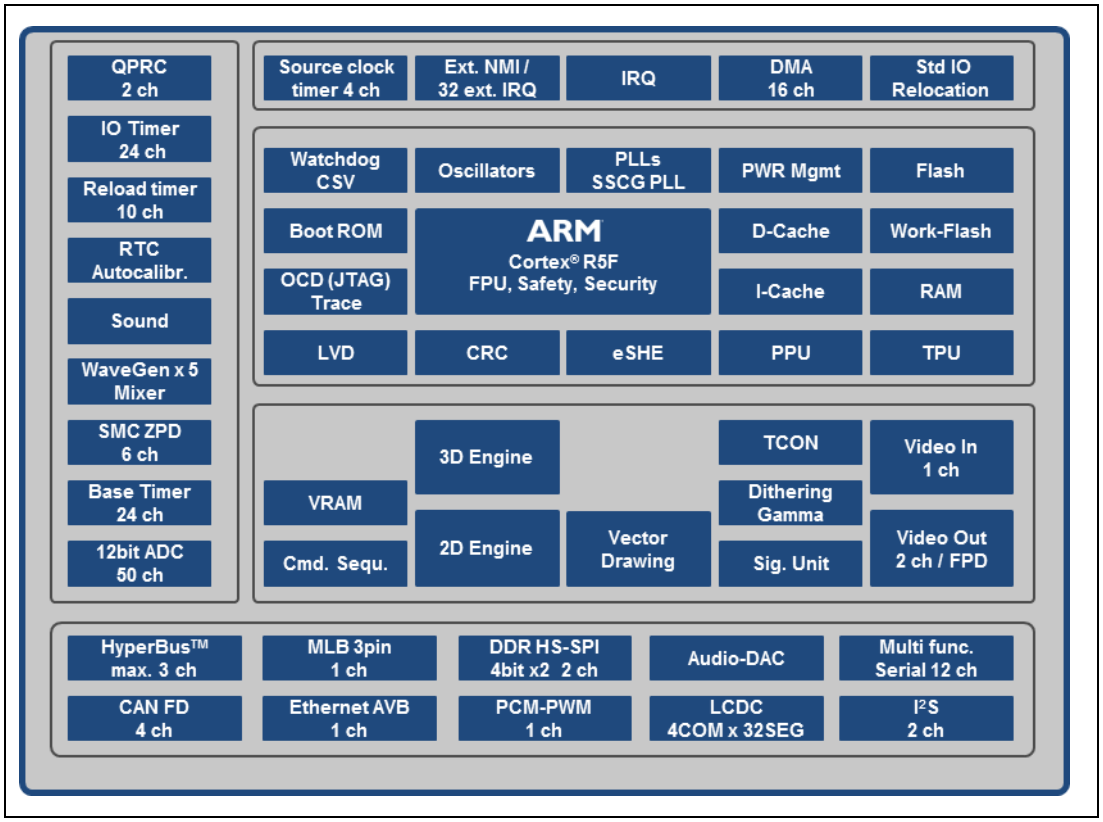

Figure 1 Traveo Family S6J3200 Series Block Diagram

Traveo Family S6J3200 Series Feature Set

The list of major features of the Traveo Family S6J3200 Series is as follows. For more information, see the **Hardware Manual and Datasheet**.

- 32-bit MCU core system
  - Up to 240 MHz ARM Cortex-R5F
  - Up to 4MB Flash, up to 512KB RAM with backup RAM
  - Up to 2MB VRAM
- Supply Voltage
  - 1.2 V/3.3 V/5.0 V
- Interface
  - 4ch CAN FD, 2ch DDR HS-SPI, 3ch HyperBus™, 12ch Multi-functional Serial, MLB, Ethernet AVB
- Cluster Feature
  - 3D: OpenGL ES1.1 On-The-Fly (optional)
  - 2D Engine
  - Maximum 2 ch Video-Out, maximum 1ch Video-In
  - Audio-DAC, PCM-PWM, I^2S
- Packages
  - 208-pin/216-pin TEQFP

3 Development Environment and Tools

3.1 Evaluation Board

Cypress provides a wealth of evaluation boards to help you get started with an MCU. The S6J3200 series evaluation boards work alone. The Traveo baseboard is a development system for the Cypress Traveo series flash microcontrollers. The evaluation board connects to the Traveo baseboard, but it can also be used without the Traveo baseboard. If you are using the evaluation board as a standalone, you can evaluate the graphics subsystem; this is because the LVDS and digital RGB (DRGB) connectors are set. In addition, you can use the external memory for HS-SPI and HyperBus. Contact your sales representative or **Cypress Technical Support**, if you want to buy the evaluation board.

Error! Reference source not found. lists the current part numbers for the evaluation boards in the S6J3200 s eries for the 216-pin and 208-pin packages, with MCU.

Table 1 Evaluation Boards

Part Number	**S6T3J200261A 216A2**	**S6T3J200261A2 08A2**	**S6T3J200281A2 16A2**	**S6T3J200281A2 08A2**	**S6T3J2002M1A 216A2**
Descriptio n	Evaluation board for S6J326CLSA mounted	Evaluation board for S6J326CKSA mounted	Evaluation board for S6J328CLSF mounted	Evaluation board for S6J328CKSF mounted	Evaluation board for S6J32MELSM mounted
Pins	216	208	216	208	216
LVDS	1ch	1ch	1ch converted DRGB direct LVDS	1ch converted DRGB direct LVDS	1ch converted DRGB
RSDS*1	1ch	1ch	–	–	–
DRGB 0	1ch selectable	1ch selectable	1ch selectable	–	1ch selectable
DRGB 1				1ch	
YUV	–	–	–	1ch	–
Audio DAC	1ch	1ch	1ch	1ch	1ch
PCM/PWM	1ch H bridge with Jack	1ch H bridge with Jack	1ch H bridge with Jack	1ch H bridge with Jack	1ch H bridge with Jack
I^2S	1ch	1ch	–	–	–
HyperFlash	1device	1device	2device	2device	2device
HyperRAM	–	–	2device	2device	2device
HS-SPI	2device	2device	2device	–	2device
CAN-FD	4ch	4ch	4ch	1ch	4ch
Ethernet	–	–	1ch	–	1ch
Cluster	–	–	–	1ch	–
Debug port	RS232C	RS232C	USB 2.0	USB 2.0	USB 2.0

*1 Reduced Swing Differential Signal

Table 2 lists the functions that can be used by the Traveo baseboard connection. If you are using High Definition Multimedia Interface (HDMI) for input (video capture) or output, you need the Traveo baseboard.

Table 2 Traveo Baseboard Connection

Part Number	S6T3J200261A 216A2	S6T3J200261A2 08A2	S6T3J200281A2 16A2	S6T3J200281A2 08A2	S6T3J2002M1A 216A2
Traveo Baseboard	Available	Available	Available	–	Available
DRGB	1ch	1ch	1ch	–	1ch
HDMI	1ch	1ch	1ch	–	1ch
Video Capture	1ch	1ch	1ch	–	1ch
I^2S	–	–	1ch	–	1ch
Ethernet AVB	1ch	1ch	1ch	–	1ch
LIN	1ch	1ch	1ch	–	1ch
Media LB	1ch	1ch	–	–	–
Cluster	Only SMC 4ch	Only SMC 4ch	1ch	–	1ch

3.2 Sample Software

Contact your sales representative or **Cypress Technical Support**, if you want to use the sample software.

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 settings, and some sample sources. It is recommended to start using the S6J3200 series with the evaluation board and tools. The sample driver includes some sources for peripheral features of the S6J3200 series.

> **Note:** *Cypress software such as AUTOSAR and the graphics driver are designed for use 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

4 Connection Diagram and Operation Modes

The S6J3200 series has JTAG ports to connect with a debugging tool, but the nRESET JTAG port is not supported in this series. Therefore, nRESET should be connected to the RSTX port of this product, if needed. In addition, the NTRST port should not be pulled up. For details, see **KBA219205**. Error! Reference source not found. shows an example of a basic connection diagram for S6J326CLSA.

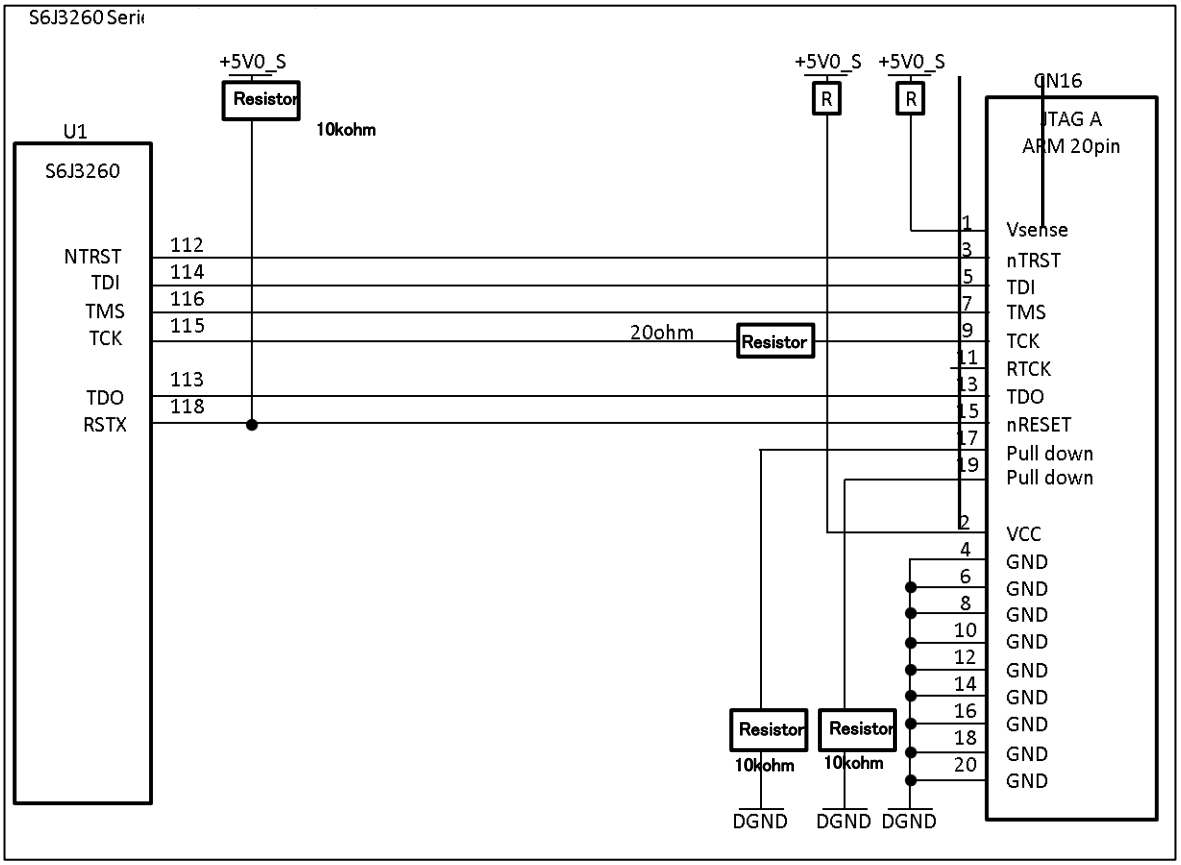

Figure 2 S6J326CLSA Basic Connection Diagram with ARM JTAG 20

The S6J3200 series has a User mode and Serial Write modes. Error! Reference source not found. shows the User mode connection. The Serial Write modes use P225 and P227 with the MODE port. Error! Reference source not found. lists the operation modes combined with the MODE, P225, and P227 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 a flash program software that works on the PC and the evaluation board has a UART port. Contact your sales representative or **Cypress Technical Support**, if you want to evaluate the flash program software.

Summary

In addition, a flash memory programmer provided by DTS INSIGHT (formerly known as YDC) supports writing a user program to the flash memory using a serial port in the S6J3200 series.

Table 4 Operation Modes

Operation Mode	MODE	P225	P227
User mode	1	–	–
Serial Write mode (Sync)	0	1	0
Serial Write mode (Async)	0	1	1

5 Summary

Cypress provides a wealth of evaluation boards and sample software to help you get started with Traveo. To evaluate the S6J3200 series evaluation boards, contact your sales representative or **Cypress Technical Support**.

6 Related Documents

S6J3200 Series 32-bit Microcontroller Traveo Family Hardware Manual

Traveo Family Hardware Manual Platform Part

S6J3200 Series 32-bit Microcontroller Traveo Family Datasheet

Revision history

Document version	Date of release	Description of changes
**	2016-06-16	New application note.
*A	2017-08-01	Updated logo and copyright.
*B	2017-08-25	Updated the description of "2 Traveo Family S6J3200 Series Feature Set" memory size due to memory size expansion. Added part number to Table1 and Table2 of "3 Development Environment and Tools". Added a new sentence to "4 Connection Diagram and Operation Mode".
*C	2021-06-10	Converted to Infineon template.

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