Debug ADuC702x with Author Ne Version V	mIDAS-Link and Keil uVision3
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Revision History

Date	Revision History	Reviser
2009-11-20	Rev. V1.0	Neil Zhao

Abbreviation

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Debug ADuC702x with mIDAS-Link and Keil uVision3

Goal

Many customers have puzzles about how to use our mIDAS-Link with Keil for ADuC702x debugging. The key problem is the RDI Driver DLL file since the DLL file which is integrated in the installation path of C:\ADuC702x\code\midaslinkrdi_v268g can not be used sometimes with some version Keil such as the Keil uVision3 which is integrated in our CD of ADuC70xx. Then we need to download a new one for ADuC702x debugging. This document introduces the steps about how to debug ADuC702x with mIDAS-Link and Keil uVision3. (The document is used for ADuC7019/20/21/22/24/25/26/27/28 debugging)

Instrument

Hardware: EVAL-ADuC7026, mIDAS-Link JTAG Software: Keil uVision3 V3.22

Step

- 1. Install ADuC702x and Keil uVision3.
- Install J-Link driver and it can be downloaded from the address blow: <u>http://www.segger.com/download_jlink.html</u>. Please download J-Link ARM software and document pack.
- 3. Connect the JTAG interface of mIDAS-Link with the EVB of ADuC7026. Then, power on the EVB and power on the mIDAS-Link through USB cable. Normally, the driver would be installed automatically. If not, please assign to the driver folder of the J-Link driver software.
- 4. Set up the project. Run Keil firstly, and choose New Project as figure 1 shows.

<u>F</u> ile <u>E</u> dit <u>V</u> iew	Project Debug Flash Peripherals Tools SVCS Window Help
12 🛋 🖬 🗗	New Project
	Import µVision 1 Project
S 🕮 🖽 🗶	Open Project
Project Workspace	<u>Q</u> lose Project

Figure 1

Input the project name and then save it. After that, choose the device as figure 2 shows.

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China Application Support Team Toll-free number: 800-810-1742 Toll-free fax: 800-810-1747 Email: china.support@analog.com

Select Device for Target 'Target 1'	
CPU Vendor: Analog Devices Device: ADuC7026 Toolset: ARM Data base	Description:
Analog Devices ADE7169F16 ADUC7019 ADUC7019 ADUC7020 ADUC7021 ADUC7024 ADUC7025 ADUC7025 ADUC7025 ADUC7026 ADUC7026 ADUC7030 ADUC7030 ADUC7030 ADUC7032 ADUC7032 ADUC7030 ADUC7032 ADUC703 ADUC7	ARM/TDMI based controller with 12-bit 1MSPS 12-Channel ADC, 12-bit Buffered 4-channel DACs, Voltage Comparator, 62KB on-chip Rash/EE with In-System Programming (ISP) and 8KB RAM, UART, 12C and SPI senial interface, 17AG port for download Vdebug, 4 Timers, Three-phase 16-bit PVM generator, 40 General purpose I/O pin on-chip Programmable Logic. CPU clock up to 40.96 MHz, On-chip crystal oscillator and On-chip PLL.
	OK Cancel Help



Create a new file as figure 3 shows and save it as .c file.





Program it and add the file to "Source Group 1" by clicking right key on "Source Group 1" as figure 4 shows.





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Now, the simple project is finished.

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- 5. Configure Keil.
- (1) Choose the "Options of Target" as figure 5.



Figure 5

(2) Choose "Create HEX File" under Output tab so that you can get .hex file to download as figure 6.

Options for Target 'Target 1'	X
Device Target Output Listing C Asm LA Locate LA Misc Debug Utilities	
Select Folder for Objects Name of Executable: Rash	-
Create Executable: Mash Z Dehua Information Z Browse Information	
✓ Create HEX File HEX Format: HEX.386 ▼ Start: End:	
Offset:	Batch File
After Make	
Run User Program #1:	Browse
Run User Program #2:	Browse
OK Cancel Defaults	Help

Figure 6

(3) Configure the Debug tab as figure 7 shows.

Options for Target 1'				
Device Target Output Listing C Asm LA Loca	ate LA Misc Debug Utilities			
C Use Simulator Settings	Use: RDI Interface Driver Settings			
✓ Load Application at Startup ✓ Run to main()	I Load Application at Startup I Run to main()			
Initialization File:	Initialization File:			
Edit	Edit			
Restore Debug Session Settings	Restore Debug Session Settings			
Freakpoints Froolbox	I Breakpoints I Toolbox			
Watchpoints & PA	Vatchpoints			
I✓ Memory Display	I✓ Memory Display			
CPU DLL: Parameter:	Driver DLL: Parameter:			
SARM.DLL J-cADuC70	SARM.DLL -cADuC70			
Dialog DLL: Parameter:	Dialog DLL: Parameter:			
DARMAD.DLL -pADuC7026	TARMAD.DLL -pADuC7026			
1 1	1 1			
OK Ca	ncel Defaults Help			

Figure 7

4

(4) Click the "Settings" button in figure 7 and then choose the JLINKRDI.dll file as figure 8 shows.

Browse for RDI Driver DLL		
C:\Program Files\SEGGER\JLink	ARM_V408I\JLinkRDI.dll	
Cache Options Cache Options ✓ Cache Code ✓ Cache Memory	Configure RDI Driver	
	OK Cancel	Help

Figure 8

(5) Click the "Configure RDI Driver" button in figure 8 and then choose the device as figure 9 shows. We can use the default option for the other tab.

RDI S	EGGER .	J-Link RDI V4.08I Configuration	×		
Ge	neral Init	t JTAG Flash Breakpoints CPU Log			
_	Enabl	le flash programming	Т		
	Allows pro memory c	ogramming the flash. This is required to download a program into flash or to set software breakpoints in flash (flash breakpoints).			
	Device Analog ADuC7026x62				
	RAM 8 KB @ address 0x10000				
	Flash 62 KB @ address 0x80000				
	✓ Flash is mirrored @ address 0x0				
	Cache flash contents				
	Allows caching of flash contents. This avoids reading data twice and speeds up the transfer between debugger and target.				
	Verify flash contents				
	Allows verifying of flash contents. This is useful to check if the program was downloaded to flash memory correctly.				
	✓ Allow flash download				
	Allows program download to flash. Your debugger does not need to have a flash loader. This feature requires an additional license (FlashDL).				
	✓ Skip download on CRC match				
		OK Cancel Apply			

Figure 9

(6) Configure the last tab of Utilities as figure 10 shows.

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Options for Target 'Target 1'
Device Target Output Listing C Asm LA Locate LA Misc Debug Utilities
Configure Flash Menu Command
Use Target Driver for Flash Programming
RDI Interface Driver Settings Vpdate Target before Debugging
Init File: Edit
C Use External Tool for Flash Programming
Command:
Arguments:
Run Independent
OK Cancel Defaults Help

Figure 10

6. After rebuilt all target files, click debug button as figure 11 shows to start debug.

🖹 Eile Edit <u>V</u> iew Project <u>D</u> ebug Fl <u>a</u> sh	Pe <u>ri</u> pherals <u>T</u> ools <u>S</u> VCS <u>W</u> indow <u>H</u> elp	\sim
🏠 🚅 🖬 🕼 👗 💼 💼 🛄 으 으	律律 16 % % % 🙀	
🕸 🏥 🏙 👗 🙀 🔊 Target 1	• 📥 📟	Start/Stop Debug Session

Figure 11

The final debug interface is as figure 12 shows.

Ele Edit View Proje	ect Debug Flash	Peripherals Ioo	s §VCS ∭indow Help	
12 📾 🖬 🗿 🗼 🛙	B 6 2 2		3 78 M - M	
R (1 🔍 🔁 🖓 🖓	(P 1) + H	08 🖳 💭	◎ \$ □ ₽ ₩ >	
Project Workspace	- ×	01⊟#ind	lude <aduc7026.h></aduc7026.h>	
Register Value		02		
E-Current		BEVOI	delay(int length) {	
R0 0x000	0800e4	04	while (length)()	
R1 0x000	000000	04	langth and	
R2 0x000	000000	00 1	length,	
R3 0x000	000000	U6 }		
R4 0x000	000000	07 -		
H5 0x000	000000	SO8 void	d main(void)	
P7 0-000	00000	09日 {		
	00000	10	//Clock Initial	
R9 0x000	00000	11	POWKEY1 = 0x01:	//Start PLL Setting
R10 0x000	000000	12	$POWCON = 0 \times 00^{\circ}$	//Set PLL Active Mode With CD = 0 CPU CLOCK DIVIDER = 41, 78MHz
R11 0x000	00000	13	POWKFV2 = 0xF4	//Finish PII Satting
R12 0x000	000000	14	I OWNER DU OXI I,	/// mish / Lb occorna
R13 (SP) 0x000	010400	14	CR4DAT = 0-01010000.	1/Confirme PA O an autout and autout 1
R14 (LR) 0x000	0800bd	10	GF4DA1 - 0x01010000,	// Configure F4. 0 as an output and output 1
R15 (PC) 0x000	380124	10	1:2 (1)	
CPSR 0x400	000030	17	while(1)	
SPSR 0x000	300010	18	1	
User/ Syst		19	delay(1000000);	
The Interrupt		20	GP4DAT = 0x00010000;	
+ Supervisor		21		
E Abort		22 -}		
H Undefined				
🖻 🗆 Internal				
PC \$ 0x000	080124			
Mode User				
States	-1			
		-		
	"U " \$"	main.c	Disassembly	

Figure 12

6

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