KEIL RVMDK 下 HJTAG 调试 LPC236X

- 1. 安装 KEIL MDK 开放 RDI 接口
- 2. 例程下载
- 3.在FLASH 仿真
- 4. 在 RAM 仿真

一、开放 RDI 接口 安装好 MDK315B_mcu123.rar 后。。

在安装好的 \keil\arm\bin 把 lmidk-agdi.dll 重命名: lmidk-agdi.dll___ 再将 AgdiRDI.dll 改名成 lmidk-agdi.dll 即可.



然后运行 KEIL

| Options for Target 'Debug Flash' | |
|--|---|
| Device Target Output Listing Vser C/C++ A C Use Simulator Settings Limit Speed to Real-Time | Asm Linker Debug Utilities |
| ✓ Load Application at Startı ✓ Run to main() | ✓ Load Application at Startı ✓ Run to main() |
| Initialization Restore Debug Session Settings ✓ Breakpoints ✓ Toolbox ✓ Watchpoints & PA ✓ Memory Display | Initialization Edit Restore Debug Session Settings ✓ Breakpoints ✓ Toolbox ✓ Watchpoints ✓ Memory Display |
| CPU DLL: Parameter: | Driver DLL: Parameter: |
| SARMCM3.DLL | SARMCM3.DLL |
| Dialog DLL: Parameter: | Dialog DLL: Parameter: |
| DLM.DLL -pLM3S6965 | TLM. DLL -pLM3S6965 |
| 确定即 | 消 Defaults 帮助 |

选择 Luminary Eval Board 即可.出来 RDI 接口

| RDI Interface Driver Setur | , | X |
|--|------------------------------|--------------|
| Browse for RDI Driver DLL | | |
| Browse for ToolConf File | | |
| Debug Cache Options Cache <u>C</u> ode Cache <u>M</u> emory | Configure <u>B</u> DI Driver | |
| | OK Cancel | <u>H</u> elp |

二、例程下载

例程可以从

http://www.mcu123.com/product/lpc236x/LCD_Demo_ram_flash.rar

下载后解压:

(\LPC236X_Demo_2007.12\LCD_Demo_ram_flash)

| 名称 🔺 | بر | 小 | 类型 | 一代 |
|-----------------------------|---------------|----|----------------|----|
| 🛅 lst | | | 文件夹 | 20 |
| 🚞 obj | | | 文件夹 | 20 |
| 🚞 Source | | | 文件夹 | 20 |
| 🥌 Lcd_demo. htm | 39 | KΒ | HTML Document | 20 |
| 📷 Lcd_demo. lnp | 1 | KΒ | LNP 文件 | 20 |
| 📷 Lcd_demo. Opt | 5 | KΒ | OPT 文件 | 20 |
| 🥌 Lcd_demo. plg | 1 | KΒ | HTML Document | 20 |
| 🗷 Lcd_demo. Vv2 | 6 | KΒ | 礦ision Project | 20 |
| 📷 Lcd_demo_Debug Flash. dep | 2 | KΒ | DEP 文件 | 20 |
| 📷 Lcd_demo_Debug Ram. dep | 2 | KΒ | DEP 文件 | 20 |
| 📷 Lcd_demo_Opt. Bak | 5 | KΒ | BAK 文件 | 20 |
| 📷 Lcd_demo_Target 1. dep | 2 | KΒ | DEP 文件 | 20 |
| 🖬 Lcd_demo_Uv2. Bak | 6 | KΒ | BAK 文件 | 20 |
| 强 RAM. ini | 1 | KΒ | 配置设置 | 20 |
| | | | | |

三、在 FLASH 仿真

安装 H-JTAG 调试代理: 从这里下载: <u>http://www.hjtag.com</u>

| H | H-J | TAG | Serv | er | | | | | | | - | |
|-----|-----|-----|--------------|------|----------|---------------|----------|-----------|------|-----|------|--|
| F | lle | Ope | rations | Flag | sher | Script | Set | tings | Opti | ons | Help | |
| • | ÷ | ٩, | \mathbf{X} | - | 5 | ъ | 1 | ي. | • | ₽ | 0 | |
| | | | | | AI 0) | RM7T <4F1F | DM OF | I-S OF | | | | |
| Res | ady | | | | | | | | | | | |

虽然新版的 HJTAG 在 KEIL 有自动烧录的功能,但不建议使用。

运行 H-Flasher

设置好 CPU 型号:

www.mcu123.com



选取要烧录的 HEX 文件,这里选择 Lcd_demo_flash.hex

| H-Flasher | | |
|--------------------|--|-----------|
| New Load Save Save | As Options Exit About | |
| Program Wizard | >> Programming - LPC2368 | |
| 1 Flash Selection | Flash: LPC2368 0x1600F925 | Check |
| 2 Configuration | Target: ARM/TDMI-S Little-Endian | |
| 3 Init Script | Type: Intel Hex Format | ✓ Program |
| 4 Programming | | |
| 👎 H-Flasher Help | STC File: E:\work\LPU_ARM_23XX\LPU23b> | (_De |
| | Dst Addr: | |
| | | |
| | From: Entire Chip | |
| | To: Entire Chip | ▼ Blank |
| | Address: Size: | Read |
| | | |
| 擦除: Erase | | |



烧录: Program

| ん | ;>k | | |
|---|------|---------------------------------------|----------------|
| ł | -F1a | sher | |
| | B | Programmed and verified successfully. | |
| | | 00:01:10 100% 10 KB/s | Size = 10.8 KB |
| | | | Close |

打开示例工程:

| 🔽 Lcd_demo – 🏶 ision3 – [E:\wo | rk\LPC_ARM_23XX\LPC236X_Demo_2007.12\LCD_Demo_ram_flash\Source\Lcd_ |
|--|--|
| 📄 File Edit View Project Debug Flash | · Peripherals Tools SVCS Mindow Melp |
| 12 🕞 🖬 🕼 👗 🗈 😭 🗅 으 🖂 🗄 | = द ∧ % % % ¶ |
| 🕸 🏥 🕮 🧼 👗 🙀 🐼 Debug Flas | sh 🔄 🔁 🖷 |
| Project Workspace | 495 |
| Bebug Flash Source E irq.c E Code.c Startup Startup.s Swi_handler.s | <pre>496 497 -//演示程序 498 int main() 499 FK 500 500 //unsigned int i; 502 init_port(); 503 //while(1) 504 // { 505 // for(i=1;i<=128;i<<=1) 506 // { 507 // OUT_DATA(i); 508 // delayms(10); 509 // } 510 //for (j = 0x0100000; j < 0x8000000; j <<= 1) { /* Blink LED 511 // IOSET1 = j; /* Turn on 512 // delayms(10); /* cal 513 // IOCLR1 = j; /* Turn off 514 // } 516 517 1</pre> |
| 🖹 🗮 📖 🔰 🌆 📔 🦉 📔 | 🗎 Lcd_Demo. c 🖹 Code. c 📄 Startup. s 🗎 target. c |
| <pre>Build target 'Debug Flash' compiling Lcd_Demo.c linking Program Size: Code=5232 RO-da FromELF: creating hex file ".\obj\Lcd_demo_flash.axf" - Load "E:\\work\\LPC_ARM_23XX\</pre> | ata=5924 RW-data=0 ZI-data=1120 0 Error(s), 0 Warning(s). \LPC236X_Demo_2007.12\\LCD_Demo_ram_flash\\obj\\Lcd_demo_flash.&XF" |
| Debug Flash Debug Flash 点击 D ebug Ram | |

选择 Debug Flash

点击Project - >Options for target 'Target 1' 选项或快捷键 💦 , 将弹出如图1.1的选项。

| Options for Target 'Debug Flash' |
|--|
| Device Target Output Listing User C/C++ Asm Linker Debug Utilities Database: Generic CPU Data Base Vendor: NXP (founded by Philips) Device: LPC2368 oolset: ARM |
| ARM7TDMI-S based high-performance 32-bit RISC Microcontroll LPC2214/01 LPC2220 LPC2290 LPC2290 LPC2290/01 LPC2292/01 LPC2292/01 LPC2292/01 LPC2294 LPC2294 LPC2294/01 LPC2294/01 LPC2366 LPC2366 LPC2368 LP |
| 确定 取消 Defaults 帮助 |

图 1.1 选择 LPC2368

| Options for Target 'Debug Flash | • | | × | | | | | | |
|-----------------------------------|---------|-----------------------------------|---|--|--|--|--|--|--|
| Device Target Output Listing User | C/C++ A | Asm Linker Debug Utilities | | | | | | | |
| NXP (founded by Philips) LPC2368 | | | | | | | | | |
| <u>X</u> tal (MHz): 🄢 | . 0 | ARM-Mode | | | | | | | |
| Operating None | - | Use Cross-Module Optimization | | | | | | | |
| | | 🔽 Use MicroLIB 🕅 Big Endian | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Read/Only Memory Areas | Startur | Read/Write Memory Areas | | | | | | | |
| | | | | | | | | | |
| | - 2 | | | | | | | | |
| KUM2: | | I KAM2: | | | | | | | |
| ROM3: | 0 | RAM3: | | | | | | | |
| on-chip TPOUL 0x0 0x80000 | | 0n-chip TRAUL 0x4000000 0x8000 | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | Понк П. р. с. р. (— #RELL | | | | | | | |
| | | 以相 | | | | | | | |

图 1.2 可以看到 LPC2368 芯片地址分配

| Options for Target 'Debug Flash' | × |
|---|--|
| Device Target Output Listing User C/C++ C Use Simulator Settings Image: Limit Speed to Real-Time Settings | Asm Linker Debug Utilities |
| ✓ Load Application at Starty ✓ Run to main() | ✓ Load Application at Startu ⊂ Run to main() |
| Initialization | Initialization |
| Restore Debug Session Settings | Restore Debug Session Settings |
| Breakpoints I Toolbox | Breakpoints Toolbox |
| Watchpoints & PA | Watchpoints |
| Memory Display | Memory Display |
| CPU DLL: Parameter: | Driver DLL: Parameter: |
| SARM.DLL -cLPC2100 | SARM. DLL |
| Dialog DLL: Parameter: | Dialog DLL: Parameter: |
| DARMP.DLL -pLPC2368 | TARMP.DLL -pLPC2368 |
| | Q消 Defaults 帮助 |

图 1.3 设置 Debug 选项

选择 RDI 接口

| RDI Interface Driver Setup | |
|----------------------------------|--|
| Browse for RDI Driver DLL | |
| C:\Program Files\HJTAG\HJTAG.dll | |
| Browse for ToolConf File | |
| | |
| Debug | |
| Cache Cote | |
| Cache Memory | |
| | |
| OK Cancel <u>H</u> elp | |

图 14 设置 HJTAG RDI 驱动

设置好后退出设置,并进入 Debug 仿真

| ect | Debi | ug | Fl <u>a</u> sh | Pe <u>r</u> iphe | rals | <u>T</u> ools | <u>s</u> vcs | <u>W</u> indow | H |
|-----|------------------------------------|----|----------------|------------------|------|---------------|--------------|----------------|---|
| a | 🍳 Start/Stop <u>D</u> ebug Session | | | | | Ctr | 1+F5 | - | |
| | | | | | | | | | |

| Load "E:\\work\\LPC_ARM_23XX\ > ASSIGN BreakDisable BreakEnab | LPC236X_Demo_2007.12\\LC le BreakKill BreakList Br Hes / | D_Demo_ram_flash\\obj\\L eakSet BreakAccess COVER | cd_demo_flash.AXF" |
|--|--|---|--|
| Loading object code | 100 % | BAL INTErisce briver | L.513 4 |
| 运行到 main 处 | | | |
| 🕎 Lcd_demo – 🚮ision3 – [Disa | ssembly] | | |
| 🙀 File Edit Yiew Project Debug Flas | h Pe <u>r</u> ipherals <u>T</u> ools <u>S</u> VCS <u>W</u> ind | w <u>H</u> elp | |
| 🏙 😹 🖬 🕼 👗 🛍 🗎 으 오 🔤 | ╪ ╪ <u> </u> | - M 🕅 - | - (12) 🗇 🙋 🖪 💌 |
| 👬 🗐 🕙 한 한 안 10 🗟 🗟 | £ 🔍 🔊 🖤 🛃 🗉 🗄 🗖 | 3 Ba 🥕 | |
| Project Workspace | 499: (| | |
| Register Value | 500: 501: //unsigned int | | |
| R0 0x4000023c R1 0x0000000 R2 0x40000060 R3 0x000013a1 R4 0x4000000 R5 0x4000000 R6 0x0000000 R8 0x0000000 R9 0x0000000 R10 0x0000000 R12 0x0000000 R13 0SPD 0x400002594 R11 0x0000000 R12 0x0000000 R15 0rC) 0x0000000 R12 0x0000000 R13 SPSR 0x0000000 W SFSR 0x0000000 W SFST 0x0000000 | <pre>c>0x00000B4C E92D4010 502: init_port(); 503: //while(1) 504: // (505: // for(i=1;i4 506: // (507: // OUT_DATA(: 508: // delayms(10 509: //) 510: //for (j = 0 511: // IOSET: 512: // delaym 513: // IOCLR: 514: //) 515: //) 516: 517: 0x00000B50 EBFFFFF1 518: lcdini(); //m 0x00000B54 EBFFFE28</pre> | <pre>STMDB R13!,(R4,R14) (=128;i<<=1) ();));)x010000; j < 0x800000; ; (= j; ns (10); (= j; BL init_port(0x0)) (= set BL lcdini(0x0000)</pre> | j <<= 1) { /* Blink] /* Turn /* /* Turn 0000B1C) 03FC) |
| | | | |
| Stack Frames Value/Add | 🖺 Lcd_Demo.c 🗎 Code.c 📲 | 🖹 Startup.s 📄 target.c 🧟 | Disassembly |
| <pre>kload "E:\\work\\LPC_ARM_23XX kload "E:\\work\\LPC_ARM_23XX k</pre> | \\LPC236X_Demo_2007.12\\ ble BreakKill BreakList hFiles / | LCD_Demo_ram_flash\\obj\ BreakSet BreakAccess COV | Lcd_demo_flash.AXF" |
| For Help, press F1 | | RDI Interface Drive: | r t1: 0.0000000 sec |

跨步执行:

| 🕎 Lcd_demo – 🚮 ision3 – [E:\w | ork\LPC_ARM_23XX\LPC236X_Demo_2007.12\LCD_Demo_ram_f1ash\Source\Lcd_De |
|-------------------------------------|---|
| 📄 File Edit View Project Debug Flas | h Pe <u>r</u> ipherals <u>T</u> ools <u>S</u> VCS <u>W</u> indow <u>H</u> elp |
| 🎦 😂 🖬 🕼 👗 🛍 🛍 🗅 으 으 | 律律 & % % % % |
| 👫 🖹 🗷 🕑 🔂 (P 🕫 🕹 🖗 0 | x 🔍 🖗 💯 🕌 🗄 🔚 🔤 🚾 强 🥕 |
| Project Workspace 🔹 🗙 | 515 // } |
| Register Value 🔺 | 516 |
| - Current | 517 |
| R0 0x0000001 | 518 lcdini(); //reset |
| R1 0x0000040 | 519 clrscr(); //clr |
| | 520 |
| R3 0x0000000 | 521 |
| R4 0x40000010 | 522 Draw word(0,0,0,16); // |
| K5 Ux4000000 | ⇒523 Draw word(1.16.0.16): // |
| N6 UXUUUUUUUU | 524 Draw word(2,32,0,16): $1/2$ |
| R8 0v0000000 | 525 Draw word (3, 48, 6, 16) - // |
| R9 0x000003e | 526 Draw word(0,64,0,16); // |
| R10 0x00002b94 | 527 Draw word (1.9.8.6.1) · // |
| R11 0x00000000 | 527 Draw word (1,00,0,10), // |
| R12 0x00000b4c | 528 braw_word(2,90,8,10), // |
| R13 (SP) 0x40000258 | |
| R14 (LR) 0x00000b70 | 530 CIPSCT(); // |
| R15 (PC) 0x00000b70 | 531 DrawBmp(0,112,HKMKI1_Dmp); |
| + CPSR 0x60000010 | 532 Drawsmp(1,119,smp802); // |
| ± SPSR 0x0000010 | 533 |
| + User/S | 534 clrscr(); // |
| | 535 delay1s(3); |
| 🗏 🔤 🥨 🧐 🧐 | 536 DrawBmp1(0,122,Bmp012); //LOGO |
| | 537 while(1) |
| Symbols 🔺 🗙 | |
| | |
| Stack Frames Value/Add | 🖹 Lcd_Demo. c 🖹 Code. c 📄 Startup. s 🗎 target. c |
| Load "E:\\work\\LPC_ARM_23XX | <pre>\\LPC236X_Demo_2007.12\\LCD_Demo_ram_flash\\obj\\Lcd_demo_flash.&XF"</pre> |

| At the | | ASSIGN BreakDisable BreakEnabl | e BreakKill | BreakList | BreakSet | BreakAccess | COVERAGE | DEFINE | DIR | Disp |
|--------|----|--------------------------------|-------------|-----------|----------|-----------------|-------------|------------|-----|-------|
| ē | 3 | Command / Find in Fi | les / | | | | | • | | |
| Re | 28 | ady | | | | RDI Interface I | river t1: 0 | . 00000000 | sec | L:523 |

注:

FLASH 断点只能 2 个(全速运行时) 单步时只能设置 1 个断点(因为单步本身占用 1 个断点)

三、在 RAM 仿真

| 🔽 Lcd_demo – 🚮ision3 – [E:\w | ork\LPC_ARM_23XX\LPC236X_Demo_2007.12\LCD_Demo_ram_ | | | | | |
|---|--|--|--|--|--|--|
| 📄 File Edit View Project Debug Flas | h Peripherals Tools SVCS Window Help | | | | | |
| | | | | | | |
| 🚯 🕮 📾 🚿 🕌 🙀 🔊 Debug Ra | m 🔄 🛃 🖷 | | | | | |
| Project Workspace Debug Ram Source Lcd_Demo. c Lcd_Demo. c Code. c Startup Startup. s swi_handler. s | 519 clrscr(); //clr 520 521 522 Draw_word(0,0,0,016); // 523 Draw_word(1,16,0,16); // 524 Draw_word(2,32,0,16); // 525 Draw_word(3,48,0,16); // 526 Draw_word(0,64,0,16); // 527 Draw_word(1,80,0,16); // 528 Draw_word(1,80,0,16); // 529 Draw_word(2,96,0,16); // 530 clrscr(); // 531 DrawBmp(0,112,ARMKIT_bmp); 532 DrawBmp(1,119,Bmp062); // 533 534 534 clrscr(); // 535 DrawBmp1(0,122,Bmp012); //L0C0 537 while(1) 538 { 539 delay1s(3); 540 clrscr(); // 541 clrscr(); // | | | | | |
| ■ Ŵ ♥8 ♥ | Lcd_Demo.c Code.c Cartup.s Code.c R | | | | | |
| Build target 'Debug Flash' linking Program Size: Code=5232 RO-d FromELF: creating hex file ".\obj\Lcd_demo_flash.axf" - | ata=5924 RW-data=0 ZI-data=1120 . O Error(s), O Warning(s). nFiles / | | | | | |
| Ready | RDI Interface Driver | | | | | |
| ∑ Debug Flash Debug Flash Debug Ham | | | | | | |
| 517 | | | | | | |

选择 Debug Ram

| Options for Target 'Debug Ram' | × | | | | | |
|---|--------|--|--|--|--|--|
| Device Target Output Listing Vser C/C++ Asm Linker Debug Utilities | | | | | | |
| NXP (founded by Philips) LPC2368 Xtal (MHz): I2.0 Code Generation ARM-Mode | | | | | | |
| Operating None | | | | | | |
| Read/Only Memory Areas defaultff-chip Start Size Startur defaultff-chip Start Size | NoInit | | | | | |
| □ ROM1: □ RAM1: □ | | | | | | |
| ROM2: C RAM2: C | | | | | | |
| ROM3: RAM3: | | | | | | |
| on-chip on-chip IROM1: 0x40000000 0x6000 IRAM1: 0x40006000 0x2000 | | | | | | |
| IROM2: 0x7FE00000 0x3800 | | | | | | |
| | | | | | | |
| 确定 取消 Defaults | 帮助 | | | | | |

ROM 起始地址: 0x40000000 长度: 0X6000 RAM 起始地址: 0x40006000 长度: 0X2000

| Options for Target 'Debug Ram' | × |
|---|---|
| Device Target Output Listing User C/C++ Asm Linker Debug Utilities Preprocessor Symbols fine: DEBUG_RAM idefine: | |
| Language / Code Generation ✓ Enable ARM/Thumb Interworking Strict ANSI C Warnings: :imization: Level 0 (-00 ▼ Enum Container always int Sunspecified>▼ ○ Optimize for Time Plain Char is Signed Thumb Mode ○ Split Load and Store Multiple Read-Only Position Independen Thumb Mode ○ One ELF Section per Function Read-Write Position Independe Thumb Mode | |
| Include Paths Misc Controls Compiler control string Compiler control D_DEBUG_RAM =0 ".\obj*.o" ==omf_browse ".\obj*.crf" ==depend ".\obj*.d" | |
| 确定 取消 Defaults 帮助 | |

代码中根据_DEBUG_RAM 是否定义来决定在 FLASH 或 RAM 运行

| 146 | ************************ | ************** |
|--------|---------------------------------------|-------------------------------|
| 147 | <pre>void TargetResetInit(void)</pre> | |
| 148 | ∃{ | |
| 149 | <pre>#ifdefDEBUG_RAM</pre> | |
| 150 | MEMMAP = 0x2; | /* remap to internal RAM */ |
| 151 | #endif | |
| 152 | | |
| 153 | <pre>#ifdefDEBUG_FLASH</pre> | |
| 154 | MEMMAP = 0x1; | /* remap to internal flash */ |
| 155 | #endif | |
| 156 | | |
| 157 | #if USE_USB | |
| 158 | PCONP = 0x80000000; | /* Turn On USB PCLK */ |
| 159 | #endif | |
| 11 400 | 📃 /v Costianno DLL cuity | sh fuom TDP to Main OPP v/ |

本例中设置如下:

| Options for Target 'Debug Ram' | | |
|---|-----------|------------|
| Device Target Output Listing User | C/C++ Asm | Linker Deb |
| Preprocessor Symbols | | |
| fine: DEBUG_RAM | | |
| ldefine: | | |

如果是用 LPC2300.S 的启动文件

那则在这里设置:

| Options for Target 'Debug Flash' |
|--|
| Device Target Output Listing User C/C++ Asm Linker |
| Conditional Assembly Control Symbols |
| efene: RAM_MODE |

LPC2300.S

MEMMAP EQU 0xE01FC040 ; Memory Mapping Control IF :DEF:REMAP LDR RO, =MEMMAP :DEF:EXTMEM MODE IF R1, **#3** MOV :DEF:RAM_MODE ELIF R1, #2 MOV ELSE R1, **#1** MOV ENDIF R1, [R0] STR ENDIF

设置调试选项:

| Options for Target 'Debug Ram' | | | | | |
|--|--|--|--|--|--|
| Device Target Output Listing User C/C++ Device C Use Simulator Settings Image: Limit Speed to Real-Time Settings | Asm <u>Linker Debug Utilities</u> ⊙ <u>U</u> se: Luminary Eval Board ▼ Settings | | | | |
| ✓ Load Application at Starty ✓ Run to main() Initialization | | | | | |
| Restore Debug Session Settings V Breakpoints V Toolbox V Watchpoints & PA V Memory Display Restore Debug Session Settings V Breakpoints V Toolbox V Watchpoints & PA V Memory Display Nemory Display | | | | | |
| CPU DLL: Parameter: SARM.DLL -cLPC2100 | Driver DLL: Parameter: SARM. DLL | | | | |
| Dialog DLL: Parameter: DARMP.DLL -pLPC2368 | Dialog DLL: Parameter: TARMP.DLL -pLPC2368 | | | | |
| 确定 取消 Defaults 帮助 | | | | | |

同样在 SEGGINGS 中设置 H-JTAG RDI 驱动

| RDI Interface Driver Setup | × |
|----------------------------------|---|
| Browse for RDI Driver DLL | |
| C:\Program Files\HJTAG\HJTAG.dll | 1 |
| Browse for ToolConf File | |
| | |
| Debug | |
| Cache Options | |
| Cache Memory | |
| | _ |
| OK Cancel <u>H</u> elp | |

在 RAM 中运行,需要添加脚本配置

| 🔽 Load Application at Startu 🥅 Ru | n to | main() |
|-----------------------------------|------|--------|
| Initialization | | |
| . \RAM. ini | | Edit |

RAM.ini 内容如下:

//*** <<< Use Configuration Wizard in Context Menu >>> ***

```
FUNC void Setup (void) {
// <o> Program Entry Point
PC = 0x40000000; //RAM 的首址
}
```

// LOAD .\Obj\Lcd_demo_ram.axf INCREMENTAL // Download

Setup();

// Setup for Running

g, main //运行到 MAIN 处

自己新建的工程中要在 RAM 中运行调试仿真,也需要上面的脚本。

| | (d) | 1 |
|---------|------------|---------|
| 退出设置后直接 | | 出进入仿真调试 |

RAM 中调试无需预先烧录程序到 FLASH。

www.mcu123.com

| 🕎 Lcd_demo 🛛 = 🚮ision3 🚽 [Disa | ssembly] |
|---|---|
| 🖳 Eile Edit View Project Debug Flas | h Peripherals Icols SVCS Mindow Help |
| 🎦 😹 🖬 🍠 👗 🖬 🛍 🏼 🗠 🖓 | 準律 ふ % % % % |
| 87 21 🛇 79 79 79 → 22 0 | 1 💽 🐺 ザ 🐸 🖃 🔚 🌆 🌆 🏊 🥕 |
| Project Workspace | 400. / |
| Register Value | 500: |
| □ R0 0x4000623c R1 0x0000000 R2 0x40006060 R3 0x400013a1 R4 0x40006010 R5 0x40000000 R6 0x0000000 R7 0x0000000 R8 0x0000000 R9 0x0000003e R10 0x40002b94 R11 0x400004c R13 (SP) 0x40000b4c R13<(SP) R15 (PC) (PSR 0x4000010 ① SPSR 0x4000010 ① ① SPSR (PSSR. 0x0000001 ① SPSR ① SPSR ① SPSR (Past Tht | <pre>C>0x40000B4C E92D4010 STMDE RID!,(R4,R14) S01: //unsigned int i; S02: init_port(); S03: //while(1) S04: // { S05: // for(i=1;i<=128;i<<=1) S06: // { S07: // OUT_DATA(i); S08: // delayms(10); S09: // } S10: //for (j = 0x010000; j < 0x800000; j <<= S11: // IOSET1 = j; S12: // delayms(10); S13: // IOCLR1 = j; S14: //) S15: // } S16: Ox40000B50 EBFFFFF1 BL init_port(0x40000B S17: Ox40000B54 EBFFFE28 BL lcdini(0x400003FC)</pre> |
| | 518: lcdini(); //reset |
| | |
| Stack Frames Value/Add | ELCd_Demo.c Code.c E Startup.s E target.c E RAM. |
| <pre>X // LOAD .\Obj\Lcd_demo_ram.a Setup(); g, main }</pre> | xf INCREMENTAL // Download // Setup for Running |
| | |
| ADDIGN BreakDisable BreakEna | DIE Breakklij BreakList BreakSet BreakAccess COVERAG n Files / |
| | |
| T 1 T T 1 T 1 | DDT T I C D 1 II. |

从上图看到现在代码的地址为:0x40000000之后 (0x40000000 是 RAM 的首址)

| www.mcu125.com |
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| 🕎 Lcd_demo 🛛 = 🗱ision3 = [E:\wor | ck\LPC_ARM_23XX\LPC236X_Demo_2007.12\LCD_Demo_ram_f | | |
|--|---|--|--|
| File Edit Yiew Project Debug Flash | Peripherals Tools SVCS Window Help | | |
| 🎦 😂 🖬 🎒 👗 🖻 🖀 😂 🕰 🏥 | = 律 ∧ % % % % | | |
| 8t 1 3 3 3 3 4 4 4 1 4 1 1 1 1 1 1 1 1 1 1 | R 💭 🖤 🔰 🗏 🗄 🔤 🔤 🖪 | | |
| Project Workspace | 513 // IOCLR1 = i: | | |
| Register Value | 514 // } | | |
| - Current | 515 // } | | |
| RD 0x0000001 | 516 | | |
| R1 0x00000040 | 517 | | |
| R2 0xe0028000 | 518 lcdini(); //reset | | |
| R3 0x00000000 | 519 clrscr(): //clr | | |
| R4 0x40006010 | 520 | | |
| R5 0x40006000 | 521 | | |
| R6 0x00000000 | | | |
| | -7.022 Draw_word(0,0,0,0,0), 7/ | | |
| N8 UXUUUUUUUU | 523 Draw_word(1,10,0,10), // | | |
| R10 0v40002594 | 524 Draw_woru(2,32,0,10); // | | |
| B11 0v0000000 | 525 Draw_woru(3,48,0,10); // | | |
| | 526 Draw_word(0,64,0,16); // | | |
| R13 (SP) 0x40006258 | 527 Draw_word(1,80,0,16); // | | |
| R14 (LR) 0x40000b70 | _528 Draw_word(2,96,0,16); // | | |
| R15 (PC) 0x40000b70 | 529 | | |
| | 530 clrscr(); // | | |
| | 531 DrawBmp(0,112,ARMKIT_bmp); | | |
| + User/S | 532 DrawBmp(1,119,Bmp002); // | | |
| | 533 | | |
| 📄 📖 🔚 💶 🖳 🛄 📖 🛛 🐯 📖 🛛 🗮 📗 | 534 clrscr(); // | | |
| | 535 delay1s(3); | | |
| Symbols | | | |
| | | | |
| Stack Frames Value/Add | 🖹 Lcd_Demo. c 🖹 Code. c 📋 Startup. s 🖹 target. c 🗎 RA | | |
| // LOAD .\Obj\Lcd_demo_ram.axi | f INCREMENTAL // Download | | |
| Setup(); | // Setup for Running | | |
| g, main | | | |
| ð - | | | |
| | | | |
| NSSIGN BreakDisable BreakEnab. | le BreakKill BreakList BreakSet BreakAccess COVERA | | |
| δ M A ▶ M Build Command / Find in Files / | | | |
| Ready | RDI Interface Driver ti | | |

到此已经完成了在 FLASH 及在 RAM 仿真

如有问题请到 <u>http://www.mcu123.net/bbs</u> 中提出。 谢谢。

2007-12