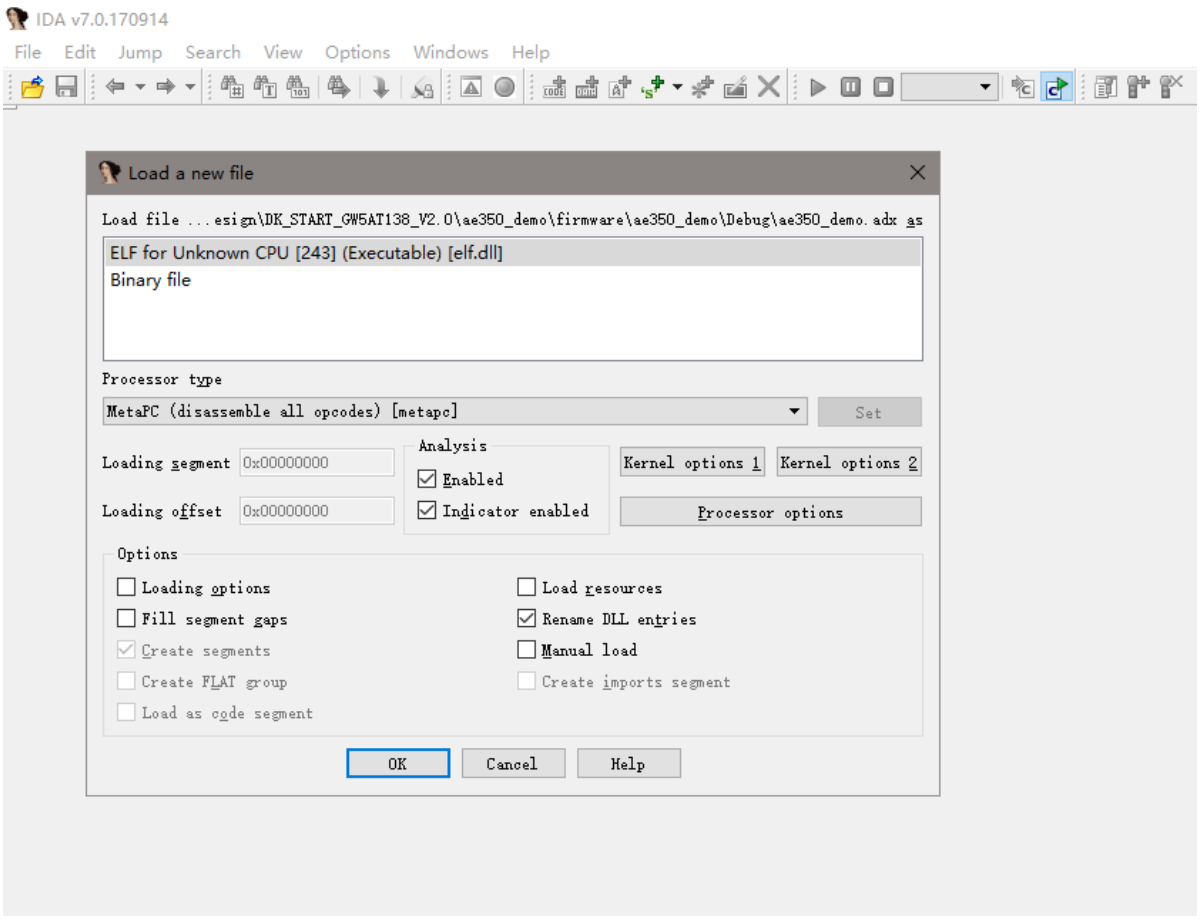
AE350

OpenOCD和GDB

0x80001ea0

```
MuZhi@MuZhi /cygdrive/d/Andestech/AndeSight_RDS_v511/toolchains/nds32le-elf-mculib-v5/bin
$ ./riscv32-unknown-elf-gdb -ex "target remote localhost:1111"
GNU gdb (2022-05-04_riscv32-elf-85ba823a400) 8.2.50.20190522-git
Copyright (C) 2019 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://gnu.org/licenses/gpl.html>
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
Type "show copying" and "show warranty" for details.
This GDB was configured as "--host=x86_64-pc-cygwin --target=riscv32-elf".
Type "show configuration" for configuration details.
For bug reporting instructions, please see:
<http://www.gnu.org/software/gdb/bugs/>.
Find the GDB manual and other documentation resources online at:
    <http://www.gnu.org/software/gdb/documentation/>.

For help, type "help".
Type "apropos word" to search for commands related to "word".
[info] Loading .Andesgdbinit.
[info] .Andesgdbinit loaded.
Remote debugging using localhost:1111
warning: No executable has been specified and target does not support
determining executable automatically.  Try using the "file" command.
0x80001eae in ?? ()
(gdb)
```

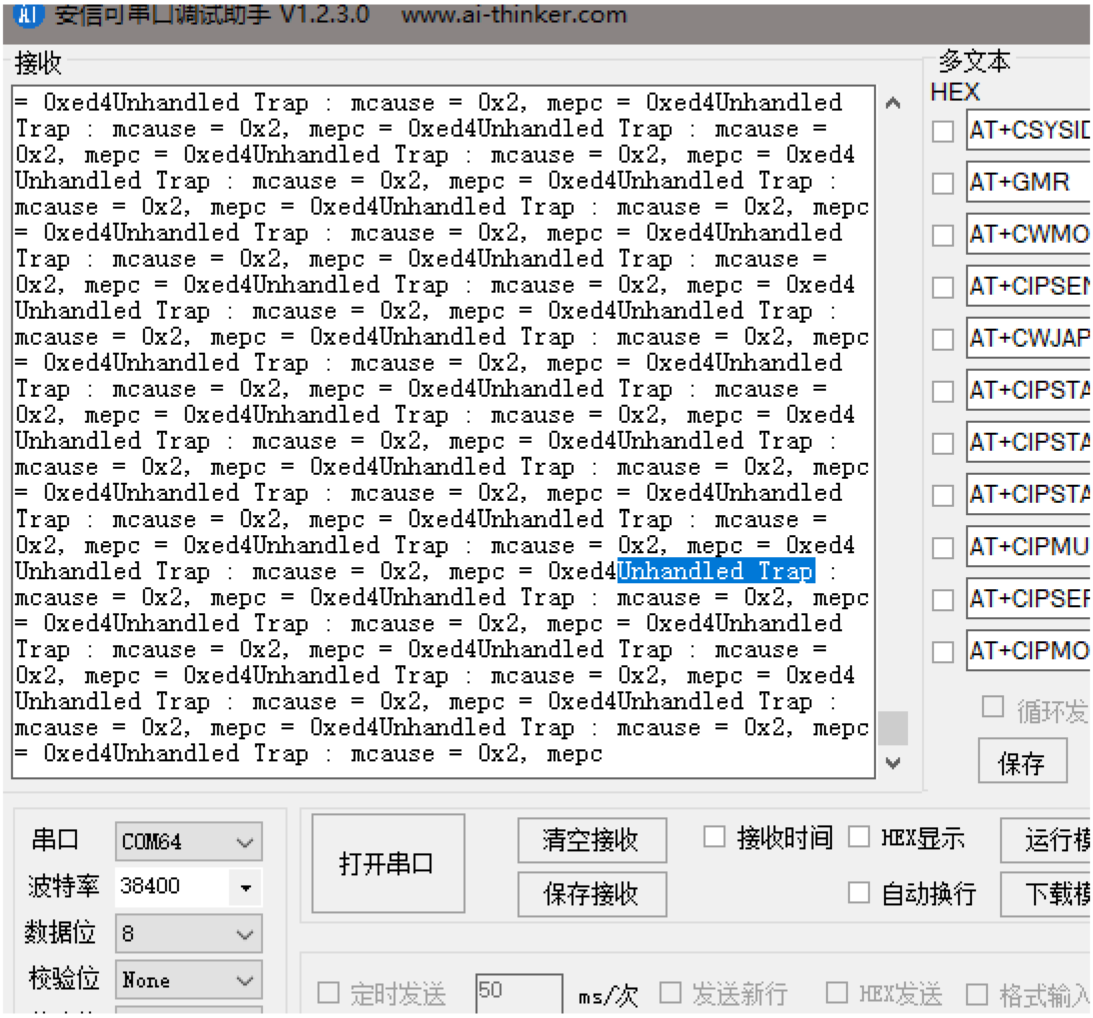


```
288
289   Disassembly of section .nds_vector:
290
291   00000000 <__text_start>:
292      0:   342022f3            csrr    t0,mcause
293      4:   00028463            beqz    t0,c <_start>
294      8:   2e10106f            j   1ae8 <nmi_handler>
295
296   0000000c <_start>:
297      c:   00003197            auipc   gp,0x3
298     10:   f4c18193            addi    gp,gp,-180 # 2f58 <__global_pointer$>
299     14:   08000297            auipc   t0,0x8000
300     18:   fec28293            addi    t0,t0,-20 # 8000000 <_stack>
301     1c:   8116                    c.mv    sp,t0
302     1e:   da4b928b            addigp  t0,-10844 # 4fc <trap_entry>
303     22:   30529073            csrw    mtvec,t0
304     26:   2809                    c.jal   38 <__platform_init>
305     28:   21a5                    c.jal   490 <reset_handler>
306     2a:   a001                    c.j 2a <_start+0x1e>
307     2c:   8082                    c.jr    ra
308     2e:   a001                    c.j 2e <_start+0x22>
309
```

```
2897      1ae6:   0001                    c.nop
2898
2899   00001ae8 <nmi_handler>:
2900      1ae8:   1141                    c.addi  sp,-16
2901      1aea:   c606                    c.swsp  ra,12(sp)
2902      1aec:   37e5                    c.jal   1ad4 <wdt_get_status>
2903      1aee:   0005775b            bbc a0,0,1afc <nmi_handler+0x14>
2904      1af2:   837fa7ab            lwgp    a5,-1996 # 278c <wdt_info>
2905      1af6:   4501                    c.li    a0,0
2906      1af8:   000780e7            jalr    a5 # f0500000 <__flash_start+0x70500000>
2907      1afc:   a001                    c.j 1afc <nmi_handler+0x14>
2908      1afe:   0001                    c.nop
2909
```

config.h | main.c | demo.h | start.S | reset.c | ae350.c | demo_led.c | uart_ae350.c | printf.c

```
17
18      .section .nds_vector, "ax"
19
20      .global reset_vector
21
22  reset_vector:
23      /* Decide whether this is an NMI or cold reset */
24      csrr t0, mcause
25      bnez t0, nmi_handler
26
27      .global _start
28      .type _start,@function
29
30  _start:
31      #csrwi mstatus, 0x0000
32      #li t0, 10000000  #10s
33  #delay_loop:
34      #nop
35      #addi t0, t0, -1
36      #bnez t0, delay_loop
37      /* Initialize global pointer */
38      .option push
39      .option norelax
40      la gp, __global_pointer$
41      .option pop
42
43      /* Initialize stack pointer */
44      la t0, _stack
45      mv sp, t0
46
47  #ifdef __nds_execit
```



安信可串口调试助手 V1.2.3.0 www.ai-thinker.com
接收
= 0xed4Unhandled Trap : mcause = 0x2, mepc = 0xed4Unhandled
Trap : mcause = 0x2, mepc = 0xed4Unhandled Trap : mcause =
0x2, mepc = 0xed4Unhandled Trap : mcause = 0x2, mepc = 0xed4
Unhandled Trap : mcause = 0x2, mepc = 0xed4Unhandled Trap :
mcause = 0x2, mepc = 0xed4Unhandled Trap : mcause = 0x2, mepc
= 0xed4Unhandled Trap : mcause = 0x2, mepc = 0xed4Unhandled
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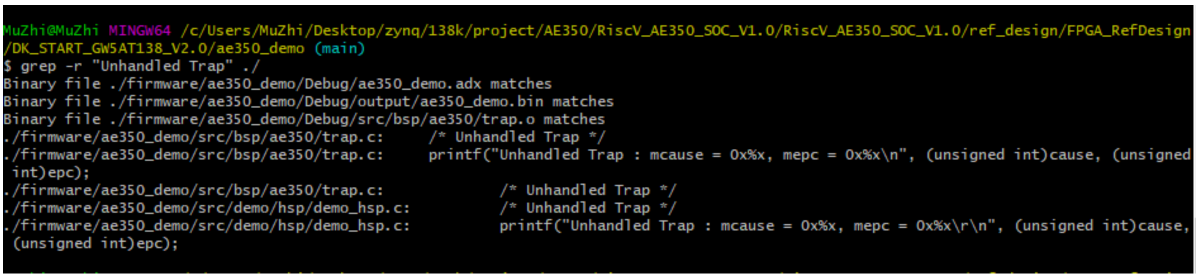
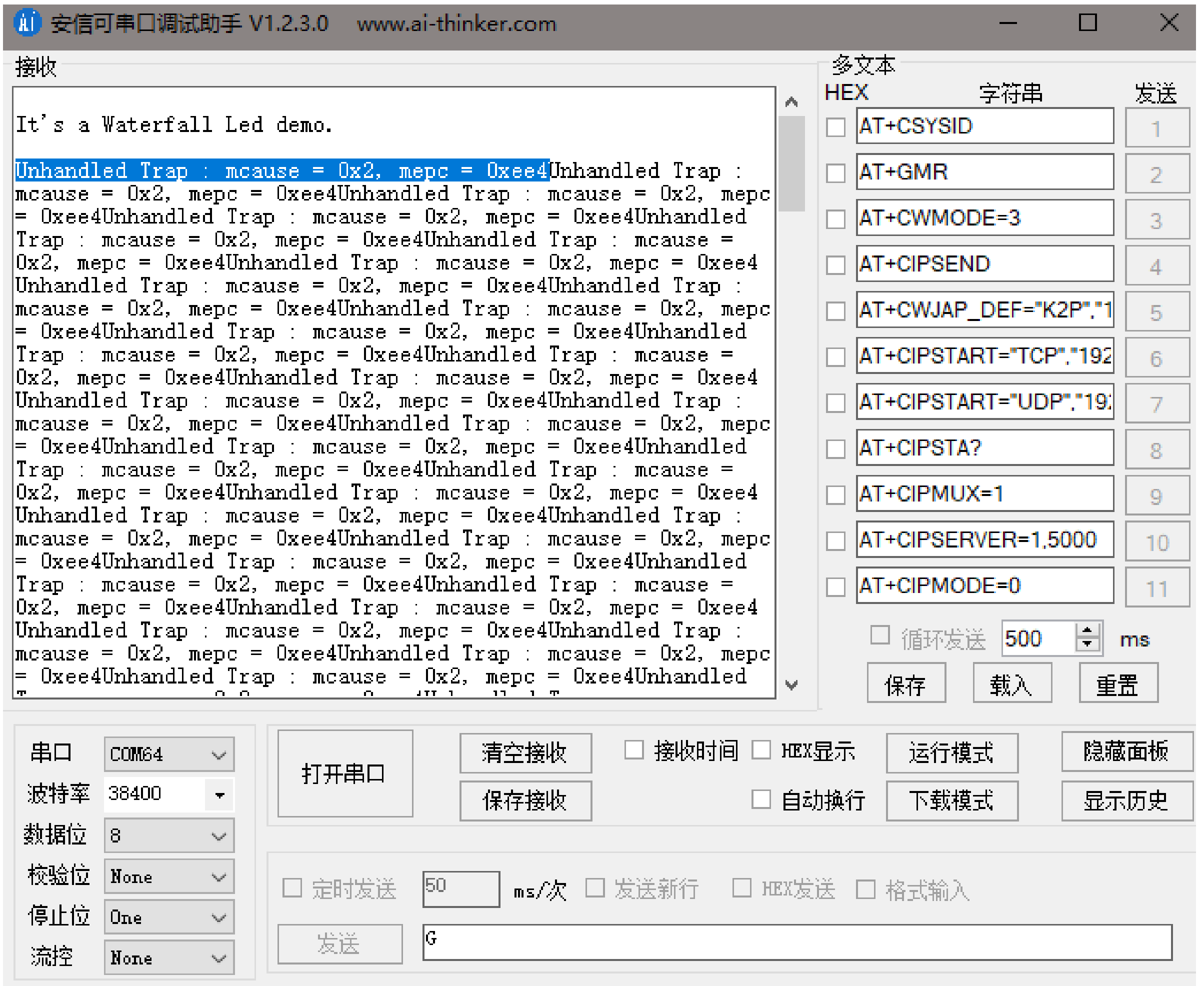
多文本
HEX
AT+CSYSID
AT+GMR
AT+CWMO
AT+CIPSEN
AT+CWJAP
AT+CIPSTA
AT+CIPSTA
AT+CIPSTA
AT+CIPMU
AT+CIPSEF
AT+CIPMO
循环发
保存
串口 COM64
波特率 38400
数据位 8
校验位 None
打开串口
清空接收
保存接收
接收时间
HEX显示
自动换行
运行模
下载模
定时发送
50
ms/次
发送新行
HEX发送
格式输入



MuZhi@MuZhi MINGW64 /c/Users/MuZhi/Desktop/zynq/138k/project/AE350/RiscV_AE350_SOC_V1.0/RiscV_AE350_SOC_V1.0/ref_design/FPGA_RefDesign/DK_START_GW5AT138_V2.0/ae350_demo (main)
$ grep -r "Unhandled Trap" ./
Binary file ./firmware/ae350_demo/Debug/ae350_demo.adx matches
Binary file ./firmware/ae350_demo/Debug/output/ae350_demo.bin matches
Binary file ./firmware/ae350_demo/Debug/src/bsp/ae350/trap.o matches
./firmware/ae350_demo/src/bsp/ae350/trap.c: /* Unhandled Trap */
./firmware/ae350_demo/src/bsp/ae350/trap.c: printf("Unhandled Trap : mcause = 0x%x, mepc = 0x%x\n", (unsigned int)cause, (unsigned int)epc);
./firmware/ae350_demo/src/bsp/ae350/trap.c: /* Unhandled Trap */
./firmware/ae350_demo/src/demo/hsp/demo_hsp.c: /* Unhandled Trap */
./firmware/ae350_demo/src/demo/hsp/demo_hsp.c: printf("Unhandled Trap : mcause = 0x%x, mepc = 0x%x\r\n", (unsigned int)cause, (unsigned int)epc);


安信可串口调试助手 V1.2.3.0 www.ai-thinker.com
接收
It's a Waterfall Led demo.
Unhandled Trap : mcause = 0x2, mepc = 0xee4Unhandled Trap :
mcause = 0x2, mepc = 0xee4Unhandled Trap : mcause = 0x2, mepc
= 0xee4Unhandled Trap : mcause = 0x2, mepc = 0xee4Unhandled
Trap : mcause = 0x2, mepc = 0xee4Unhandled Trap : mcause =
0x2, mepc = 0xee4Unhandled Trap : mcause = 0x2, mepc = 0xee4
Unhandled Trap : mcause = 0x2, mepc = 0xee4Unhandled Trap :
mcause = 0x2, mepc = 0xee4Unhandled Trap : mcause = 0x2, mepc
= 0xee4Unhandled Trap : mcause = 0x2, mepc = 0xee4Unhandled
Trap : mcause = 0x2, mepc = 0xee4Unhandled Trap : mcause =
0x2, mepc = 0xee4Unhandled Trap : mcause = 0x2, mepc = 0xee4
Unhandled Trap : mcause = 0x2, mepc = 0xee4Unhandled Trap :
mcause = 0x2, mepc = 0xee4Unhandled Trap : mcause = 0x2, mepc
= 0xee4Unhandled Trap : mcause = 0x2, mepc = 0xee4Unhandled
Trap : mcause = 0x2, mepc = 0xee4Unhandled Trap : mcause =
0x2, mepc = 0xee4Unhandled Trap : mcause = 0x2, mepc = 0xee4
Unhandled Trap : mcause = 0x2, mepc = 0xee4Unhandled Trap :
mcause = 0x2, mepc = 0xee4Unhandled Trap : mcause = 0x2, mepc
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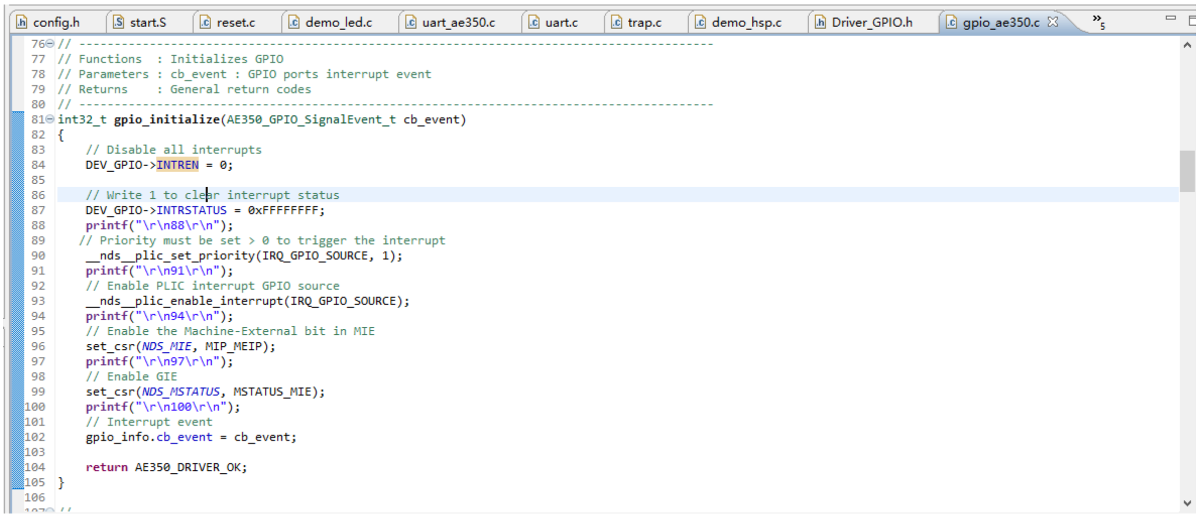
Trap : mcause = 0x2, mepc = 0xee4Unhandled Trap : mcause =
0x2, mepc = 0xee4Unhandled Trap : mcause = 0x2, mepc = 0xee4
Unhandled Trap : mcause = 0x2, mepc = 0xee4Unhandled Trap :
mcause = 0x2, mepc = 0xee4Unhandled Trap : mcause = 0x2, mepc
= 0xee4Unhandled Trap : mcause = 0x2, mepc = 0xee4Unhandled
多文本
HEX 字符串 发送
AT+CSYSID 1
AT+GMR 2
AT+CWMODE=3 3
AT+CIPSEND 4
AT+CWJAP_DEF="K2P","1 5
AT+CIPSTART="TCP","192 6
AT+CIPSTART="UDP","19: 7
AT+CIPSTA? 8
AT+CIPMUX=1 9
AT+CIPSERVER=1,5000 10
AT+CIPMODE=0 11
循环发送 500 ms
保存 载入 重置
串口 COM64
波特率 38400
数据位 8
校验位 None
停止位 One
流控 None
打开串口
清空接收 保存接收
接收时间 HEX显示 自动换行
运行模式 下载模式
隐藏面板 显示历史
定时发送 50 ms/次 发送新行 HEX发送 格式输入
发送
G


config.h start.S reset.c demo_led.c uart_ae350.c uart.c trap.c demo_hsp.c Driver_GPIO.h gpio_ae350.c
// ---
// Functions : Initializes GPIO
// Parameters : cb_event : GPIO ports interrupt event
// Returns : General return codes
// ---
int32_t gpio_initialize(AE350_GPIO_SignalEvent_t cb_event)
{
// Disable all interrupts
DEV_GPIO->INTREN = 0;
// Write 1 to clear interrupt status
DEV_GPIO->INTRSTATUS = 0xFFFFFFFF;
printf("\r\n88\r\n");
// Priority must be set > 0 to trigger the interrupt
__nds__plic_set_priority(IRQ_GPIO_SOURCE, 1);
printf("\r\n91\r\n");
// Enable PLIC interrupt GPIO source
__nds__plic_enable_interrupt(IRQ_GPIO_SOURCE);
printf("\r\n94\r\n");
// Enable the Machine-External bit in MIE
set_csr(NDS_MIE, MIP_MEIP);
printf("\r\n97\r\n");
// Enable GIE
set_csr(NDS_MSTATUS, MSTATUS_MIE);
printf("\r\n100\r\n");
// Interrupt event
gpio_info.cb_event = cb_event;
return AE350_DRIVER_OK;
}

```
00000ee4 <gpio_initialize>:
    ee4:   1141                    c.addi  sp,-16
    ee6:   c606                    c.swsp  ra,12(sp)
    ee8:   c422                    c.swsp  s0,8(sp)
    eea:   842a                    c.mv    s0,a0
    eec:   f07007b7            lui a5,0xf0700
    ef0:   0407a823            sw  zero,80(a5) # f0700050 <__flash_start+0x70700050>
    ef4:   577d                    c.li    a4,-1
    ef6:   d3f8                    c.sw    a4,100(a5)
    ef8:   cfcf950b            addigp  a0,-2820 # 24b4 <irq_handler+0xe8>
    efc:   75d000ef            jal ra,1e58 <printf>
    f00:   e40007b7            lui a5,0xe4000
    f04:   4705                    c.li    a4,1
    f06:   cfd8                    c.sw    a4,28(a5)
```

```
// Functions  : Initializes GPIO
// Parameters : cb_event : GPIO ports interrupt event
// Returns    : General return codes
// -----------------------------------------------------------------------------
int32_t gpio_initialize(AE350_GPIO_SignalEvent_t cb_event)
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    // Disable all interrupts
    DEV_GPIO->INTREN = 0;

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    DEV_GPIO->INTRSTATUS = 0xFFFFFFFF;
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    // Enable PLIC interrupt GPIO source
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    printf("\r\n94\r\n");
    // Enable the Machine-External bit in MIE
    set_csr(NDS_MIE, MIP_MEIP);
    printf("\r\n97\r\n");
    // Enable GIE
    set_csr(NDS_MSTATUS, MSTATUS_MIE);
    printf("\r\n100\r\n");
    // Interrupt event
    gpio_info.cb_event = cb_event;

```


20250122更新

ans安装目录下的那份andes-iceman.bat可以双击运行，就能设置好环境变量打开cygwin console，然后自己再cd到想操作的目录就可以

andes ide的lic如果没有，也可以手动拼接make指令去绕过ide手动编译出来bin，改下绝对路径就可以。

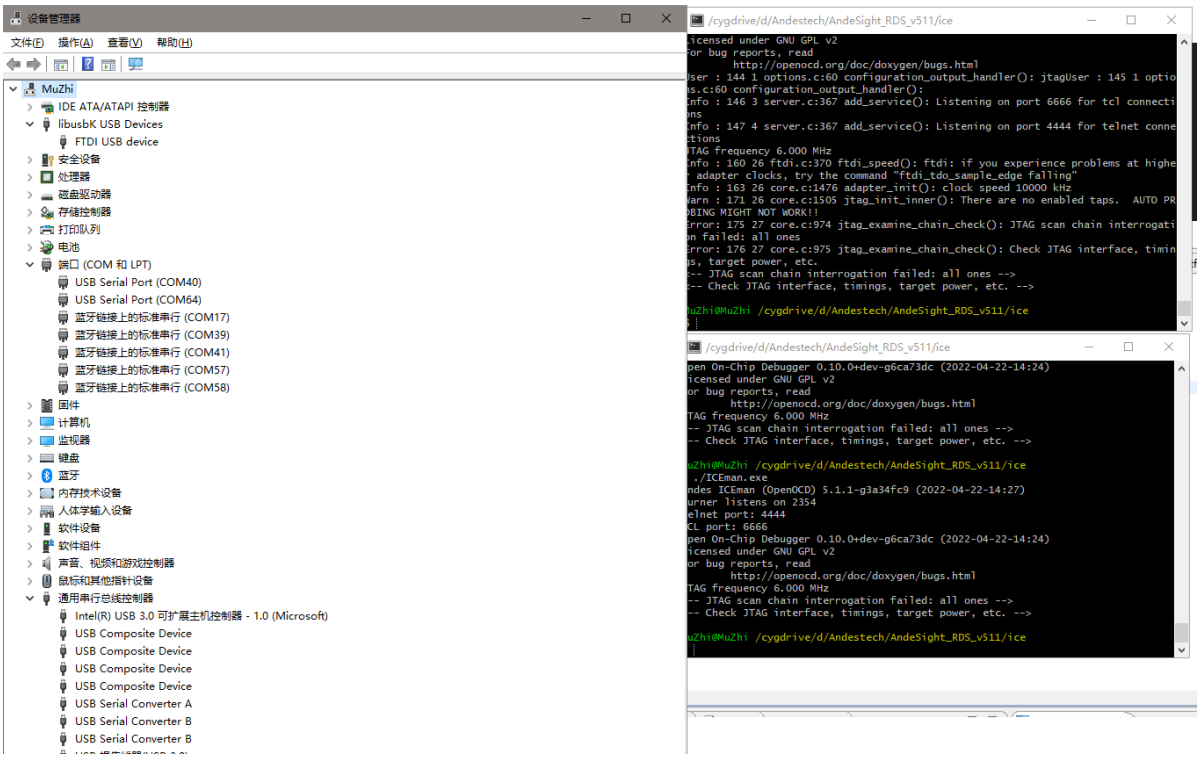
andes的ICEman实际上就是call的同级目录下的openocd。用的openocd.cfg。所以自己跑openocd也行，直接console执行./ICEman.exe也行。
ft2232需要打ans安装文件夹里那份AndeSight_RDS_v511\ice\libusb-AICE-driver 的驱动才能走libusb被识别，否则就一直是open usb fail。

如果手动调openocd，就能看到第一段里提示libusb_open fail

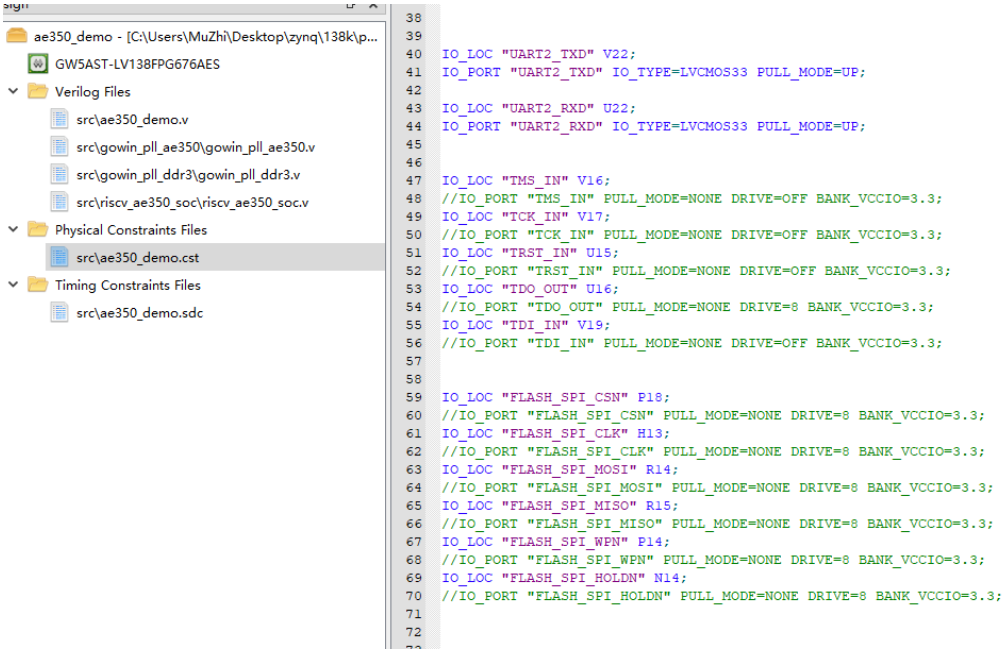
```
MuZhi@MuZhi /cygdrive/d/Andestech/AndeSight_RDS_v511/ice
$ openocd.exe --file nds32_user_test.cfg
Open On-Chip Debugger 0.10.0+dev-g6ca73dc (2022-04-22-14:24)
Licensed under GNU GPL v2
For bug reports, read
        http://openocd.org/doc/doxygen/bugs.html
Info : 113 3 server.c:367 add_service(): Listening on port 6666 for tcl connecti
ons
Info : 114 4 server.c:367 add_service(): Listening on port 4444 for telnet conne
ctions
Error: 119 22 mpsse.c:245 open_matching_device(): libusb_open() failed with LIBU
SB_ERROR_NOT_FOUND
Error: 120 22 mpsse.c:301 open_matching_device(): no device found
Error: 121 22 mpsse.c:483 mpsse_open(): unable to open ftdi device with vid 0403
, pid 6010, description '*', serial '*' at bus location '*'
<-- Can not open usb -->
<-- ICEman exit... -->
User : 124 26 command.c:699 command_run_line():
assertion "target" failed: file "/cygdrive/d/Jenkins/workspace/build-system-3/so
urce-packages/openocd-0.10.0/src/jtag/aice/aice_apis.c", line 2141, function: nd
s_freerun_all_targets
Aborted

MuZhi@MuZhi /cygdrive/d/Andestech/AndeSight_RDS_v511/ice
$ openocd.exe --file nds32_user_test.cfg
Open On-Chip Debugger 0.10.0+dev-g6ca73dc (2022-04-22-14:24)
Licensed under GNU GPL v2
For bug reports, read
        http://openocd.org/doc/doxygen/bugs.html
Info : 113 3 server.c:367 add_service(): Listening on port 6666 for tcl connecti
ons
Info : 114 4 server.c:367 add_service(): Listening on port 4444 for telnet conne
ctions
Error: 121 26 core.c:1453 adapter_init(): An adapter speed is not selected in th
e init script. Insert a call to adapter_khz or jtag_rclk to proceed.
User : 123 26 command.c:699 command_run_line():
assertion "target" failed: file "/cygdrive/d/Jenkins/workspace/build-system-3/so
urce-packages/openocd-0.10.0/src/jtag/aice/aice_apis.c", line 2141, function: nd
s_freerun_all_targets
Aborted
```

正常应该长这样：

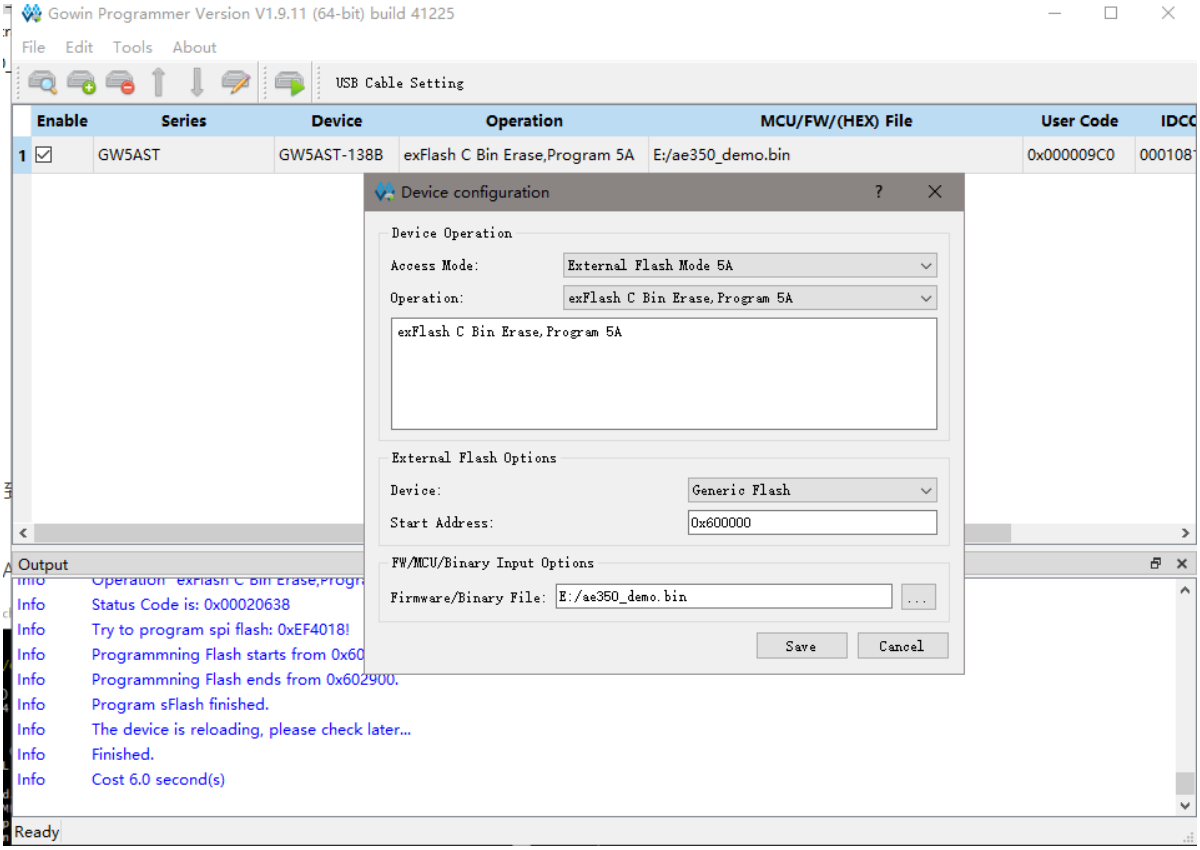


RV用的jtag和Programmer用的JTAG并不是同一个！PL端的cst里确保把RV的jtag需要约束到IO上使用无误，链接好线缆。

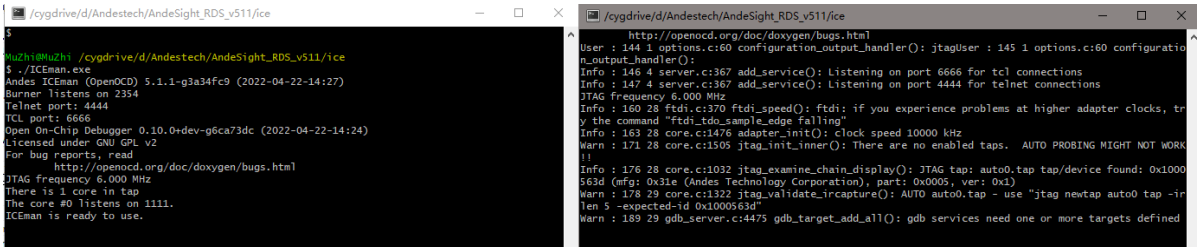



```
38
39
40  IO_LOC "UART2_TXD" V22;
41  IO_PORT "UART2_TXD" IO_TYPE=LVCMOS33 PULL_MODE=UP;
42
43  IO_LOC "UART2_RXD" U22;
44  IO_PORT "UART2_RXD" IO_TYPE=LVCMOS33 PULL_MODE=UP;
45
46
47  IO_LOC "TMS_IN" V16;
48  //IO_PORT "TMS_IN" PULL_MODE=NONE DRIVE=OFF BANK_VCCIO=3.3;
49  IO_LOC "TCK_IN" V17;
50  //IO_PORT "TCK_IN" PULL_MODE=NONE DRIVE=OFF BANK_VCCIO=3.3;
51  IO_LOC "TRST_IN" U15;
52  //IO_PORT "TRST_IN" PULL_MODE=NONE DRIVE=OFF BANK_VCCIO=3.3;
53  IO_LOC "TDO_OUT" U16;
54  //IO_PORT "TDO_OUT" PULL_MODE=NONE DRIVE=8 BANK_VCCIO=3.3;
55  IO_LOC "TDI_IN" V19;
56  //IO_PORT "TDI_IN" PULL_MODE=NONE DRIVE=OFF BANK_VCCIO=3.3;
57
58
59  IO_LOC "FLASH_SPI_CSN" P18;
60  //IO_PORT "FLASH_SPI_CSN" PULL_MODE=NONE DRIVE=8 BANK_VCCIO=3.3;
61  IO_LOC "FLASH_SPI_CLK" H13;
62  //IO_PORT "FLASH_SPI_CLK" PULL_MODE=NONE DRIVE=8 BANK_VCCIO=3.3;
63  IO_LOC "FLASH_SPI_MOSI" R14;
64  //IO_PORT "FLASH_SPI_MOSI" PULL_MODE=NONE DRIVE=8 BANK_VCCIO=3.3;
65  IO_LOC "FLASH_SPI_MISO" R15;
66  //IO_PORT "FLASH_SPI_MISO" PULL_MODE=NONE DRIVE=8 BANK_VCCIO=3.3;
67  IO_LOC "FLASH_SPI_WPN" P14;
68  //IO_PORT "FLASH_SPI_WPN" PULL_MODE=NONE DRIVE=8 BANK_VCCIO=3.3;
69  IO_LOC "FLASH_SPI_HOLDN" N14;
70  //IO_PORT "FLASH_SPI_HOLDN" PULL_MODE=NONE DRIVE=8 BANK_VCCIO=3.3;
71
72
```

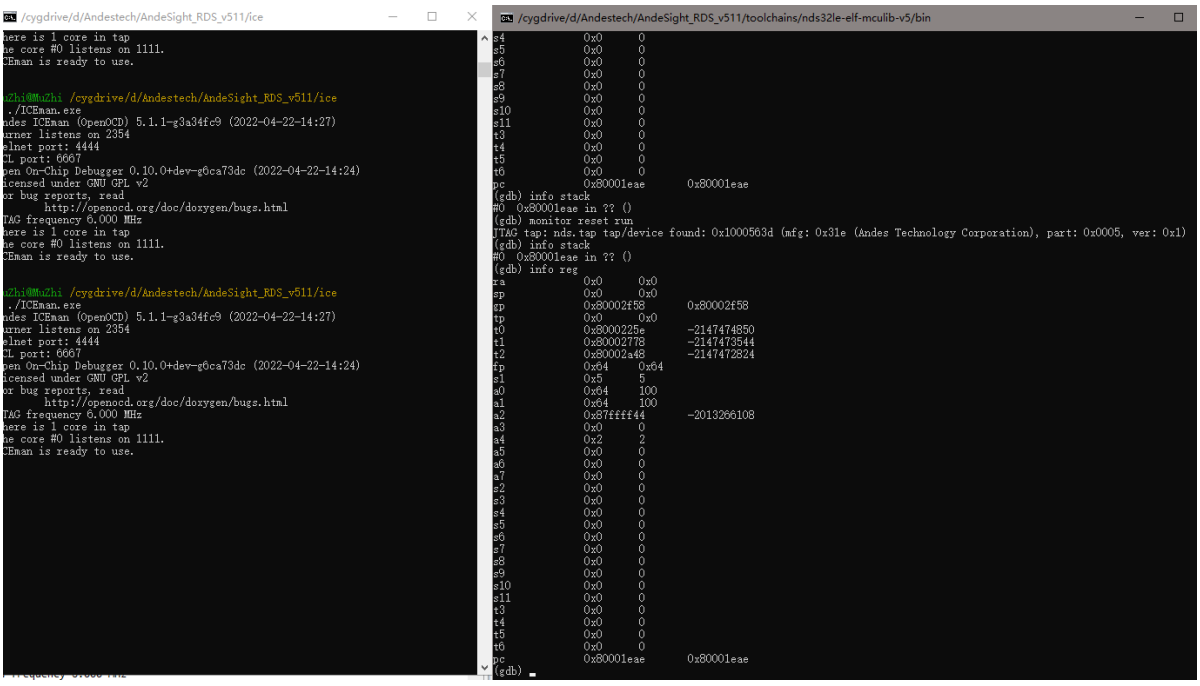
PL 的bitstream写到外置Flash 0x000000，再把RV的bin写到0x600000。



好了，无论是ICEMan.exe 还是openocd，都能扫到JTAG了，赢~



然后就可以挂gdb去愉快的写bug了



旧资料

051,169 2-gdb-version
051,174 ~"GNU gdb (2022-05-04_riscv32-elf-85ba823a400) 8.2.50.20190522-git\n"
051,174 ~"Copyright (C) 2019 Free Software Foundation, Inc.\n"
051,174 ~"License GPLv3+: GNU GPL version 3 or later http://gnu.org/licenses/gpl.html\nThis is fre\
e software: you are free to change and redistribute it.\nThere is NO WARRANTY, to the extent permitt\
ed by law."
051,174 ~"\nType "show copying" and "show warranty" for details.\n"
051,174 ~"This GDB was configured as "--host=x86_64-pc-cygwin --target=riscv32-elf".\n"
051,174 ~"Type "show configuration" for configuration details.\n"
051,174 ~"For bug reporting instructions, please see:\n"
051,174 ~"http://www.gnu.org/software/gdb/bugs/.\n"
051,174 ~"Find the GDB manual and other documentation resources online at:\n http://www.gnu.org/\
software/gdb/documentation/."
051,174 ~"\n\n"
051,174 ~"For help, type "help".\n"
051,174 ~"Type "apropos word" to search for commands related to "word".\n"
051,174 2^done
051,174 (gdb)
051,175 3-environment-cd C:/Users/MuZhi/Desktop/zynq/138k/project/AE350/RiscV_AE350_SOC_V1.0/RiscV_A\
E350_SOC_V1.0/ref_design/FPGA_RefDesign/DK_START_GW5AT138_V2.0/ae350_demo/firmware/ae350_demo
051,176 3^done
051,176 (gdb)
051,176 4-gdb-set breakpoint pending on
051,178 4^done
051,178 (gdb)
051,178 5-enable-pretty-printing
051,180 5^done
051,180 (gdb)
051,180 6-gdb-set python print-stack none
051,182 6^done
051,182 (gdb)
051,182 7-gdb-set print object on
051,184 7^done
051,184 (gdb)
051,184 8-gdb-set print sevenbit-strings on
051,186 8^done
051,186 (gdb)
051,186 9-gdb-set charset ISO-8859-1
051,188 9^done
051,188 (gdb)

051,188 10-gdb-set dprintf-style gdb
051,190 10^done
051,190 (gdb)
051,191 11source D:\Andestech\AndeSight_RDS_v511\toolchains\nds32le-elf-mculib-v5\bin.Andesgdbinit
051,192 &"source D:\Andestech\AndeSight_RDS_v511\toolchains\nds32le-elf-mculib-v5\bin\.Andesgd\
binit\n"
051,194 ~"[info] Loading .Andesgdbinit.\n"
051,195 =cmd-param-changed,param="remotetimeout",value="60"
051,197 =cmd-param-changed,param="verbose",value="on"
051,199 ~"[info] .Andesgdbinit loaded.\n"
051,199 11^done
051,199 (gdb)
051,199 12-gdb-set auto-solib-add on
051,201 12^done
051,201 (gdb)
051,202 13-file-exec-and-symbols --thread-group i1 C:\\Users\\MuZhi\\Desktop\\zynq\\138k\\\project\\AE350\\RiscV_AE350_SOC_V1.0\\RiscV_AE350_SOC_V1.0\\ref_design\\FPGA_RefDesign\\\DK_START_GW5AT138_V2.0\\ae350_demo\\firmware\\ae350_demo\\Debug\\ae350_demo.adx
051,205 ~"Reading symbols from C:\\Users\\MuZhi\\Desktop\\zynq\\138k\\project\\AE350\\\RiscV_AE350_SOC_V1.0\\RiscV_AE350_SOC_V1.0\\ref_design\\FPGA_RefDesign\\DK_START_GW5AT138_\
V2.0\\ae350_demo\\firmware\\ae350_demo\\Debug\\ae350_demo.adx...\n"
051,214 ~"Reading in symbols for ../src/demo/main.c..."
051,216 ~"done.\n"
051,216 13^done
051,216 (gdb)
051,217 14-target-select remote LOCALHOST:9902

051,218 =cmd-param-changed,param="print frame-arguments",value="all"
051,275 15show version
051,507 16-list-thread-groups
117,440 &"warning: Remote failure reply: E01\n"

GNU gdb (2022-05-04_riscv32-elf-85ba823a400) 8.2.50.20190522-git
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License GPLv3+: GNU GPL version 3 or later http://gnu.org/licenses/gpl.html
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
Type "show copying" and "show warranty" for details.
This GDB was configured as "--host=x86_64-pc-cygwin --target=riscv32-elf".
Type "show configuration" for configuration details.
For bug reporting instructions, please see:
http://www.gnu.org/software/gdb/bugs/.
Find the GDB manual and other documentation resources online at:
http://www.gnu.org/software/gdb/documentation/.

For help, type "help".
Type "apropos word" to search for commands related to "word".
source D:\Andestech\AndeSight_RDS_v511\toolchains\nds32le-elf-mculib-v5\bin.Andesgdbinit
[info] Loading .Andesgdbinit.
[info] .Andesgdbinit loaded.
Reading symbols from
C:\Users\MuZhi\Desktop\zynq\138k\project\AE350\RiscV_AE350_SOC_V1.0\RiscV_AE350_SOC_V1.0\ref_design\FPGA_RefDesign\DK_START_GW5AT138_V2.0\ae350_demo\firmware\ae350_demo\Debug\ae350_demo.adx...
Reading in symbols for ../src/demo/main.c...done.
warning: platform-specific solib_create_inferior_hook did not load initial shared libraries.
0x80000000 in ?? ()

show version
GNU gdb (2022-05-04_riscv32-elf-85ba823a400) 8.2.50.20190522-git
Copyright (C) 2019 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later http://gnu.org/licenses/gpl.html
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
Type "show copying" and "show warranty" for details.
This GDB was configured as "--host=x86_64-pc-cygwin --target=riscv32-elf".
Type "show configuration" for configuration details.
For bug reporting instructions, please see:
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http://www.gnu.org/software/gdb/documentation/.

For help, type "help".
Type "apropos word" to search for commands related to "word".
monitor nds query capability
tracer:0;profiling:1;disbus:0;exception:1;targetburn:1;pwr:0;q_access_mode:1;sysbusaccess:0;l2c_support:0

monitor targets
	TargetName	Type	Endian	TapName	State
0*	tap0_target_0	nds_v5	little	nds.tap	halted

load
Loading section .nds_vector, size 0x32 lma 0x0
Loading section .text, size 0x2354 lma 0x38
Loading section .rodata, size 0x2d0 lma 0x238c
Loading section .eh_frame, size 0xf8 lma 0x2660
Loading section .sdata, size 0x20 lma 0x2758
Start address 0xc, load size 10094
Transfer rate: 55 KB/sec, 2018 bytes/write.
Reading in symbols for ../src/bsp/ae350/start.S...done.
Current language: auto
The current source language is "auto; currently asm".
delete mem
Delete all memory regions? (y or n) [answered Y; input not from terminal]

```
monitor nds reset_memAccSize
mem 0x00000000 0x80000000 rw 64 nocache
monitor nds memAccSize 0x00000000 0x80000000 32
mem 0x80000000 0x90000000 rw 32 nocache
monitor nds memAccSize 0x80000000 0x90000000 32
mem 0xA0000000 0xA0400000 rw 32 nocache
monitor nds memAccSize 0xA0000000 0xA0400000 32
mem 0xC0000000 0xC0100000 rw 32 nocache
monitor nds memAccSize 0xC0000000 0xC0100000 32
mem 0xE0000000 0xE0500000 rw 32 nocache
monitor nds memAccSize 0xE0000000 0xE0500000 32
mem 0xE4000000 0xE6000000 rw 32 nocache
monitor nds memAccSize 0xE4000000 0xE6000000 32
mem 0xE6000000 0xE6100000 rw 32 nocache
monitor nds memAccSize 0xE6000000 0xE6100000 32
mem 0xE6400000 0xE6800000 rw 32 nocache
monitor nds memAccSize 0xE6400000 0xE6800000 32
mem 0xE6800000 0xE6900000 rw 32 nocache
monitor nds memAccSize 0xE6800000 0xE6900000 32
mem 0xE8000000 0xF0000000 rw 32 nocache
monitor nds memAccSize 0xE8000000 0xF0000000 32
mem 0xF0000000 0XF1000000 rw 32 nocache
monitor nds memAccSize 0xF0000000 0XF1000000 32
mem 0xF8000000 0xFC000000 rw 32 nocache
monitor nds memAccSize 0xF8000000 0xFC000000 32
info mem
Using user-defined memory regions.
Num Enb Low Addr   High Addr  Attrs
1   y    0x00000000 0x80000000 rw 64 nocache
2   y    0x80000000 0x90000000 rw 32 nocache
3   y    0xa0000000 0xa0400000 rw 32 nocache
4   y    0xc0000000 0xc0100000 rw 32 nocache
5   y    0xe0000000 0xe0500000 rw 32 nocache
6   y    0xe4000000 0xe6000000 rw 32 nocache
7   y    0xe6000000 0xe6100000 rw 32 nocache
8   y    0xe6400000 0xe6800000 rw 32 nocache
9   y    0xe6800000 0xe6900000 rw 32 nocache
10  y    0xe8000000 0xf0000000 rw 32 nocache
11  y    0xf0000000 0xf1000000 rw 32 nocache
12  y    0xf8000000 0xfc000000 rw 32 nocache
info mem
Using user-defined memory regions.
Num Enb Low Addr   High Addr  Attrs
1   y    0x00000000 0x80000000 rw 64 nocache
2   y    0x80000000 0x90000000 rw 32 nocache
3   y    0xa0000000 0xa0400000 rw 32 nocache
4   y    0xc0000000 0xc0100000 rw 32 nocache
5   y    0xe0000000 0xe0500000 rw 32 nocache
6   y    0xe4000000 0xe6000000 rw 32 nocache
7   y    0xe6000000 0xe6100000 rw 32 nocache
```

8 y 0xe6400000 0xe6800000 rw 32 nocache
9 y 0xe6800000 0xe6900000 rw 32 nocache
10 y 0xe8000000 0xf0000000 rw 32 nocache
11 y 0xf0000000 0xf1000000 rw 32 nocache
12 y 0xf8000000 0xfc000000 rw 32 nocache
show endian
The target endianness is set automatically (currently little endian)
info registers micm_cfg
micm_cfg micm_cfg {0x439ada, iset = 0x2, iway = 0x3, isz = 0x3, ilck = 0x1, ic_ecc = 0x2, ilmb = 0x1, ilmsz = 0x7, ulm_2bank = 0x0, ilm_ecc = 0x2, ilm_xonly = 0x0, seth = 0x0, ic_repl = 0x0} {4430554, iset = 256, iway = 4 way, isz = 32 bytes, ilck = With locking support, ic_ecc = Has ECC support, ilmb = One ILMB exists., ilmsz = 64 KiB, ulm_2bank = Only 1 memory bank, ilm_ecc = Has ECC support, ilm_xonly = ILM is not execute-only, seth = 0, ic_repl = Unknown}
info registers mdcm_cfg
mdcm_cfg mdcm_cfg {0x439ada, dset = 0x2, dway = 0x3, dsz = 0x3, dlck = 0x1, dc_ecc = 0x2, dlmb = 0x1, dlmsz = 0x7, ulm_2bank = 0x0, dlm_ecc = 0x2, seth = 0x0, dc_repl = 0x0} {4430554, dset = 256, dway = 4 way, dsz = 32 bytes, dlck = With locking support, dc_ecc = Has ECC support, dlmb = One DLMB exists and no double buffer mode support., dlmsz = 64 KiB, ulm_2bank = Only 1 memory bank, dlm_ecc = Has ECC support, seth = 0, dc_repl = Unknown}
monitor nds icache dump va 0x0
dump ICACHE

ADDRESS SET WAY V D L
0
4
8
c
10
14
18
1c

00000000 0000 0000 0 0 0
00000000
00000000
00000000
00000000
00000000
00000000
00000000
00000000

00000000 0000 0001 0 0 0
00000000
00000000
00000000
00000000
00000000
00000000
00000000
00000000

00000000 0000 0002 0 0 0
00000000
00000000
00000000
00000000
00000000
00000000
00000000
00000000

00000000 0000 0003 0 0 0
00000000
00000000
00000000
00000000
00000000
00000000
00000000
00000000

monitor nds dcache dump va 0x0
dump DCACHE

ADDRESS SET WAY V D L
0
4
8
c
10
14
18
1c

00000000 0000 0000 0 0 0
00000000
00000000
00000000
00000000
00000000
00000000
00000000
00000000

00000000 0000 0001 0 0 0
00000000
00000000
00000000
00000000
00000000
00000000
00000000
00000000

00000000 0000 0002 0 0 0
00000000
00000000
00000000
00000000
00000000
00000000
00000000
00000000

00000000 0000 0003 0 0 0
00000000
00000000
00000000
00000000
00000000
00000000
00000000
00000000

Warning: the current language does not match this frame.
p/x (char)-1
$1 = 0xff
show endian
The target endianness is set automatically (currently little endian)