Assembly Examples in Appendix C

EXPERIMENT C.1

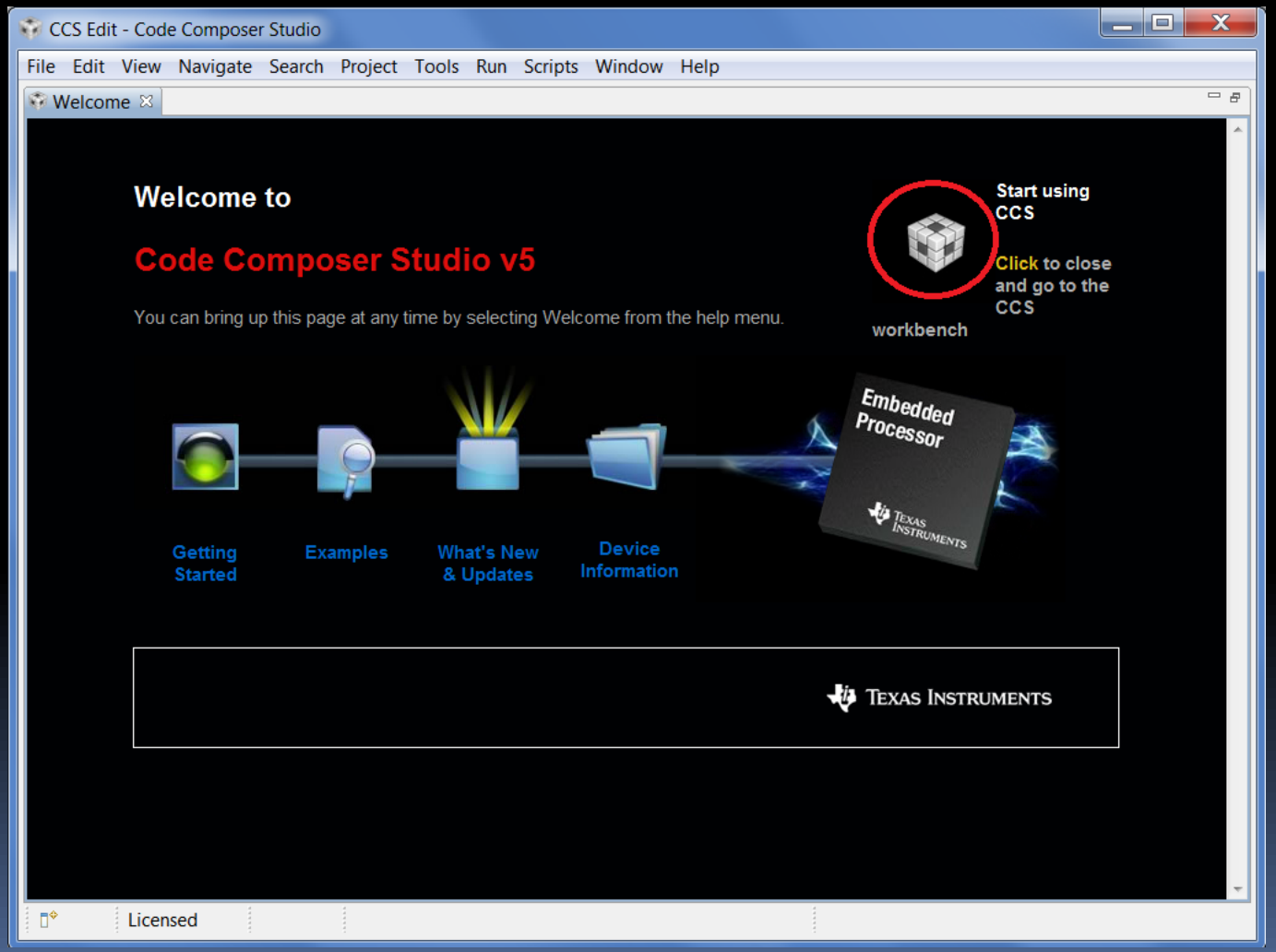
Propose of the experiment

- Use CCS to view the software examples given by the Appendix

Start CCS

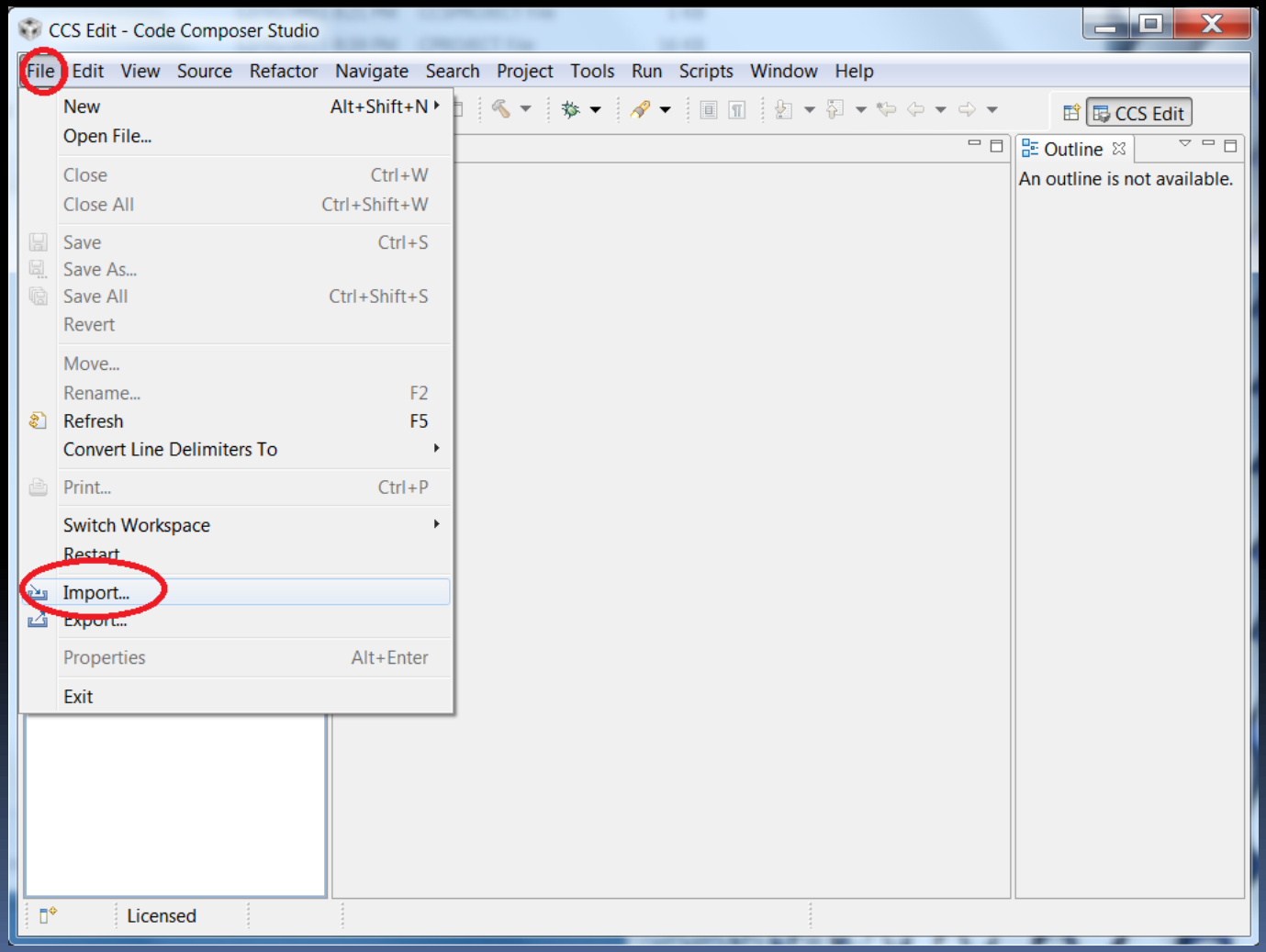
(Example: Code Composer Studio Version 5)

Go to CCS


CCS Edit - Code Composer Studio
File Edit View Navigate Search Project Tools Run Scripts Window Help
Welcome
Welcome to
Code Composer Studio v5
You can bring up this page at any time by selecting Welcome from the help menu.
Start using CCS
Click to close and go to the CCS workbench
Embedded Processor
Texas Instruments
Getting Started
Examples
What's New & Updates
Device Information
Texas Instruments
Licensed

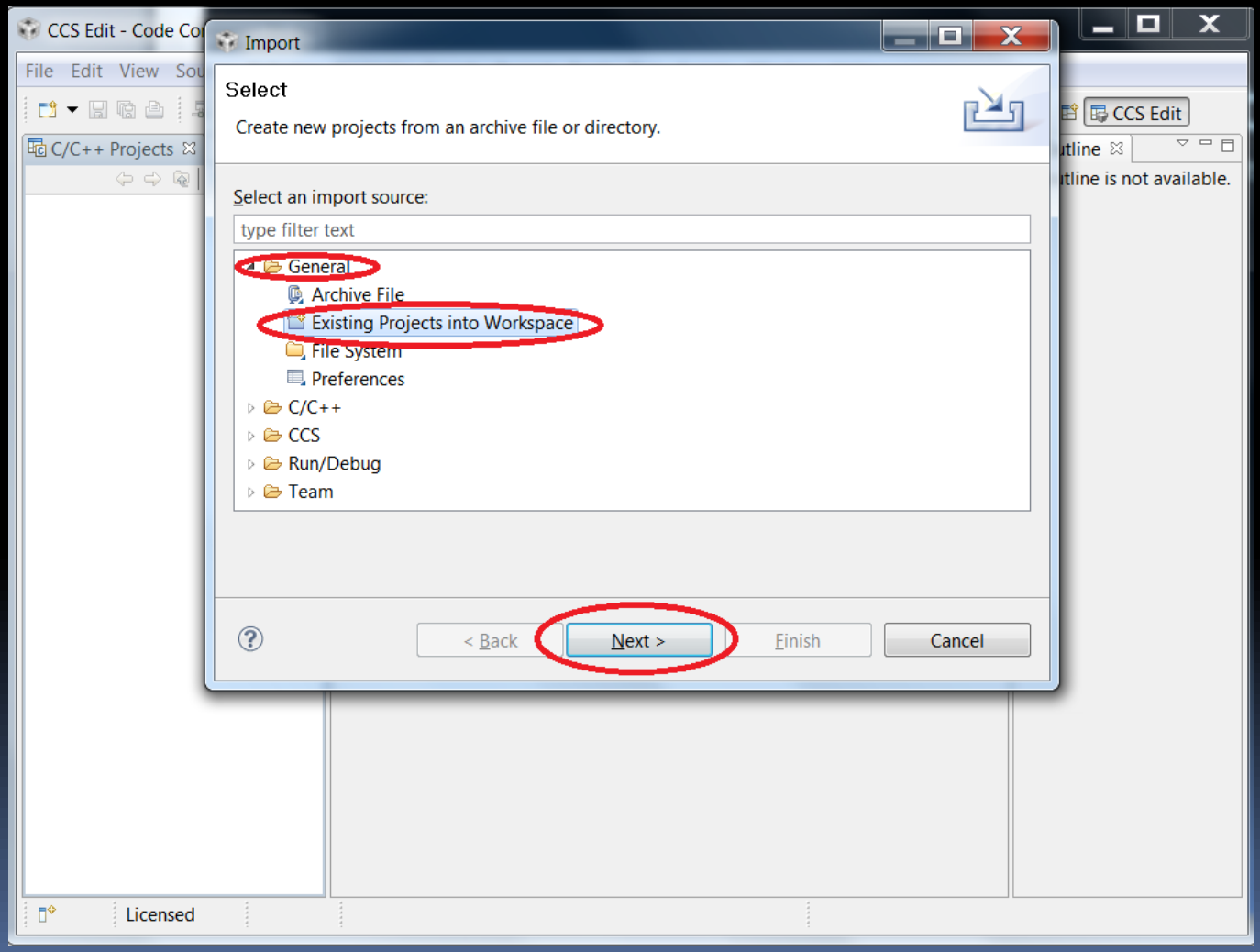
Import existing CCS project (1)

(File -> Import)



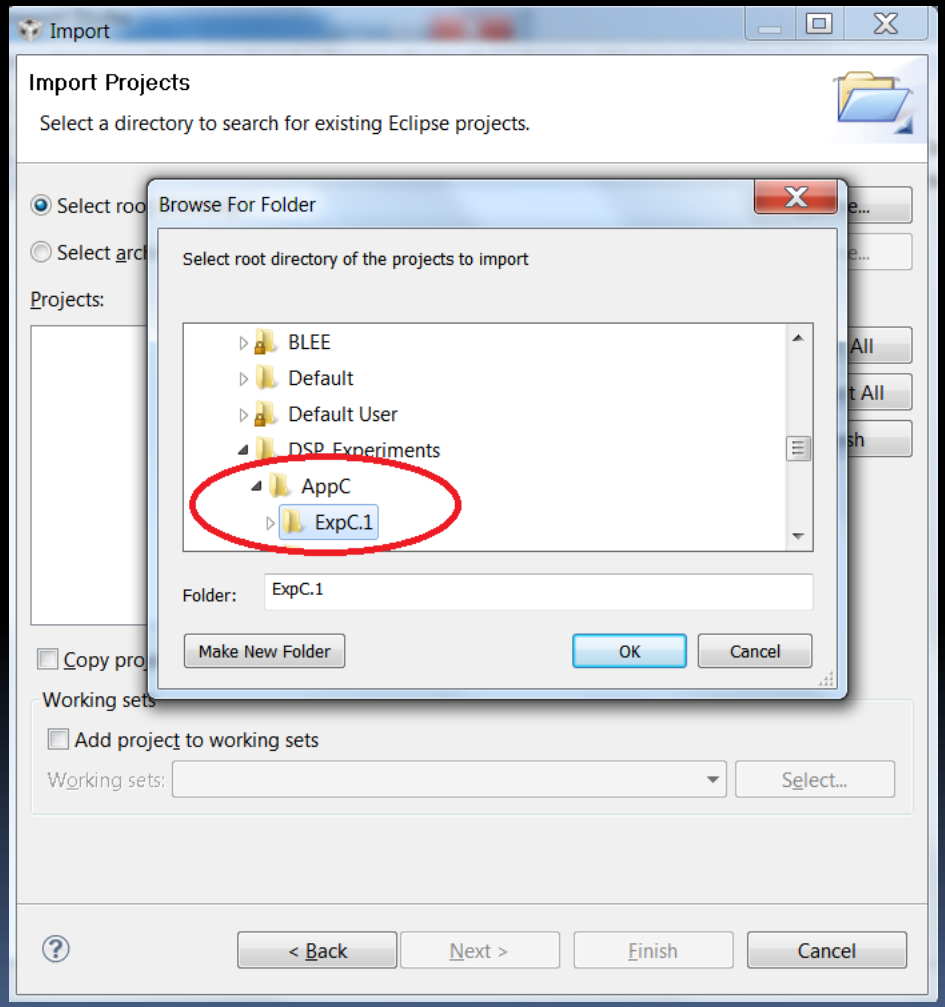
Import existing CCS project (2)

(General, select Existing Project into Workspace, then Next)



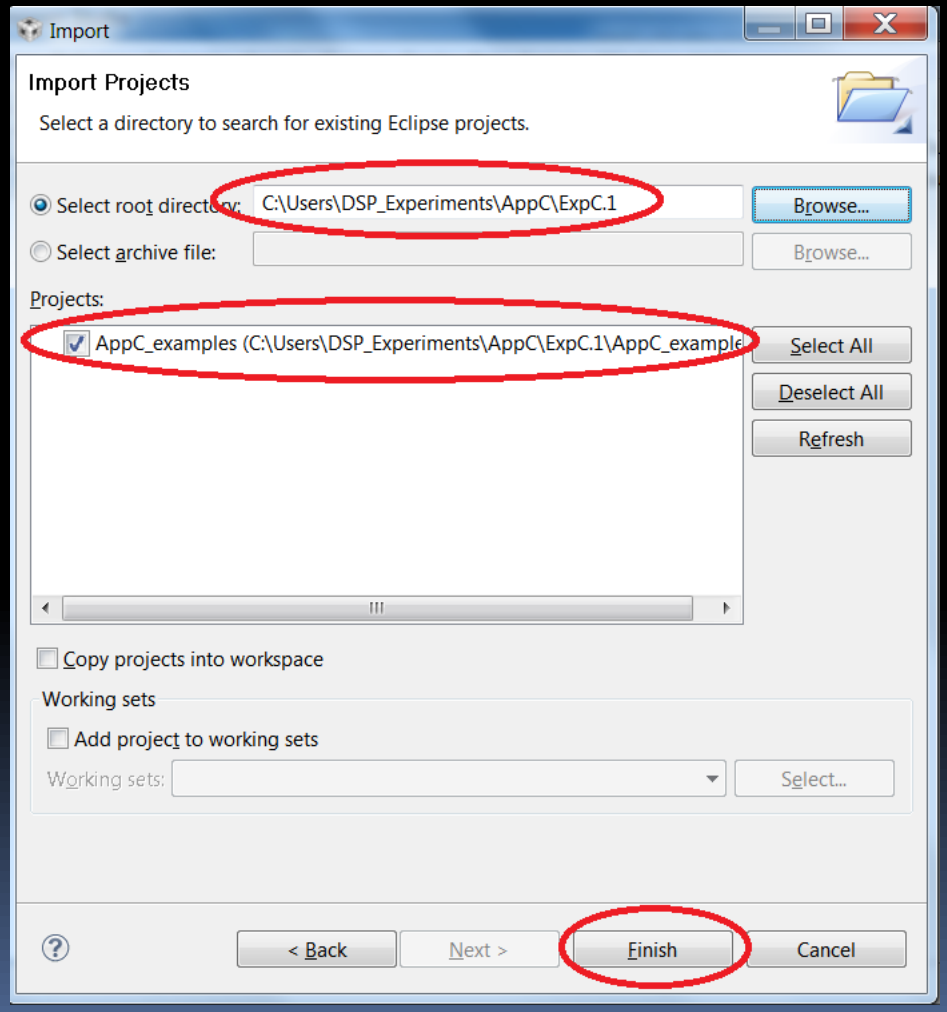
Import existing CCS project (3)

(Browse…, go to your folder, then OK)



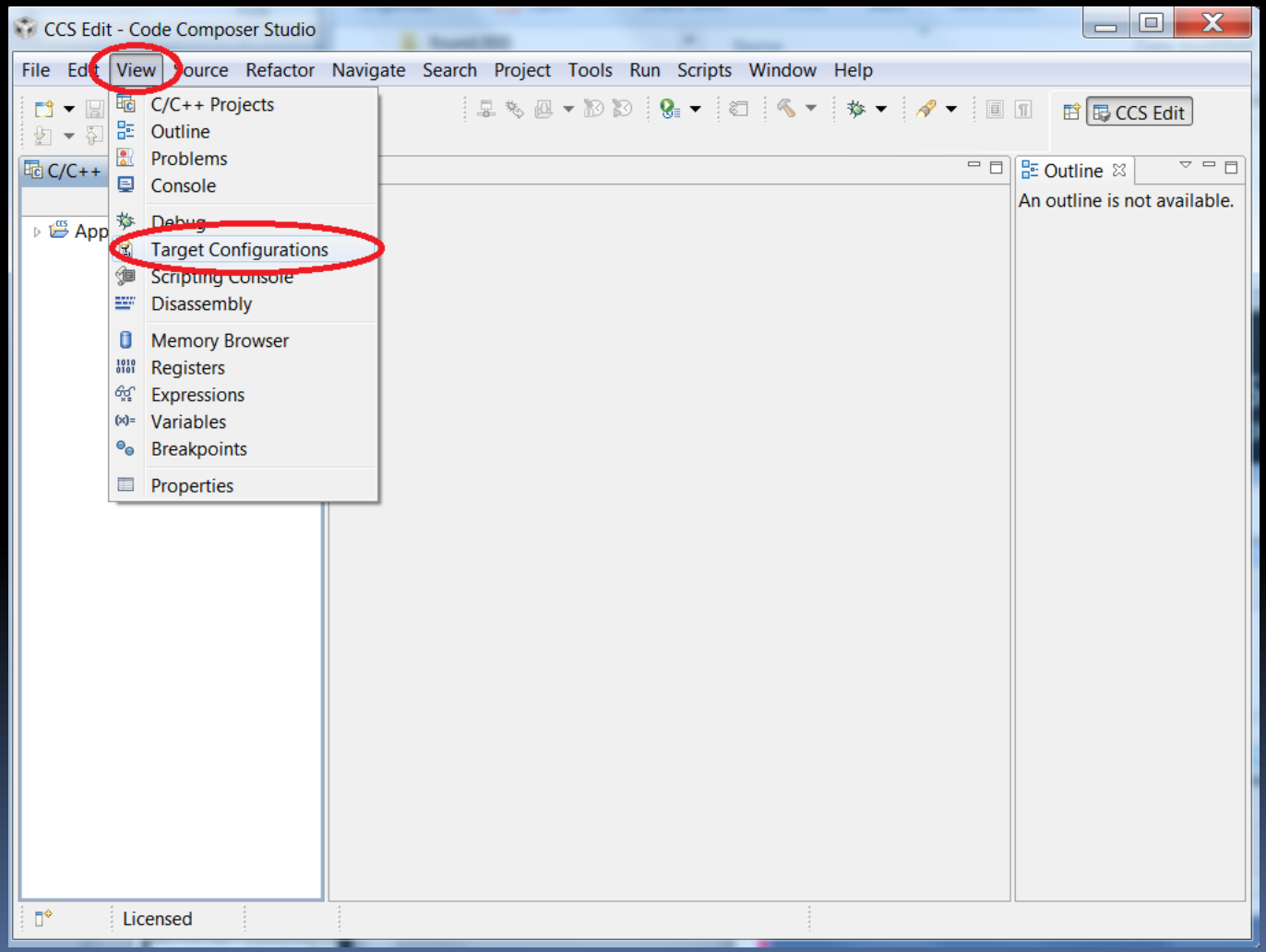
Import existing CCS project (4)

(Select the path, the project, then click Finish)

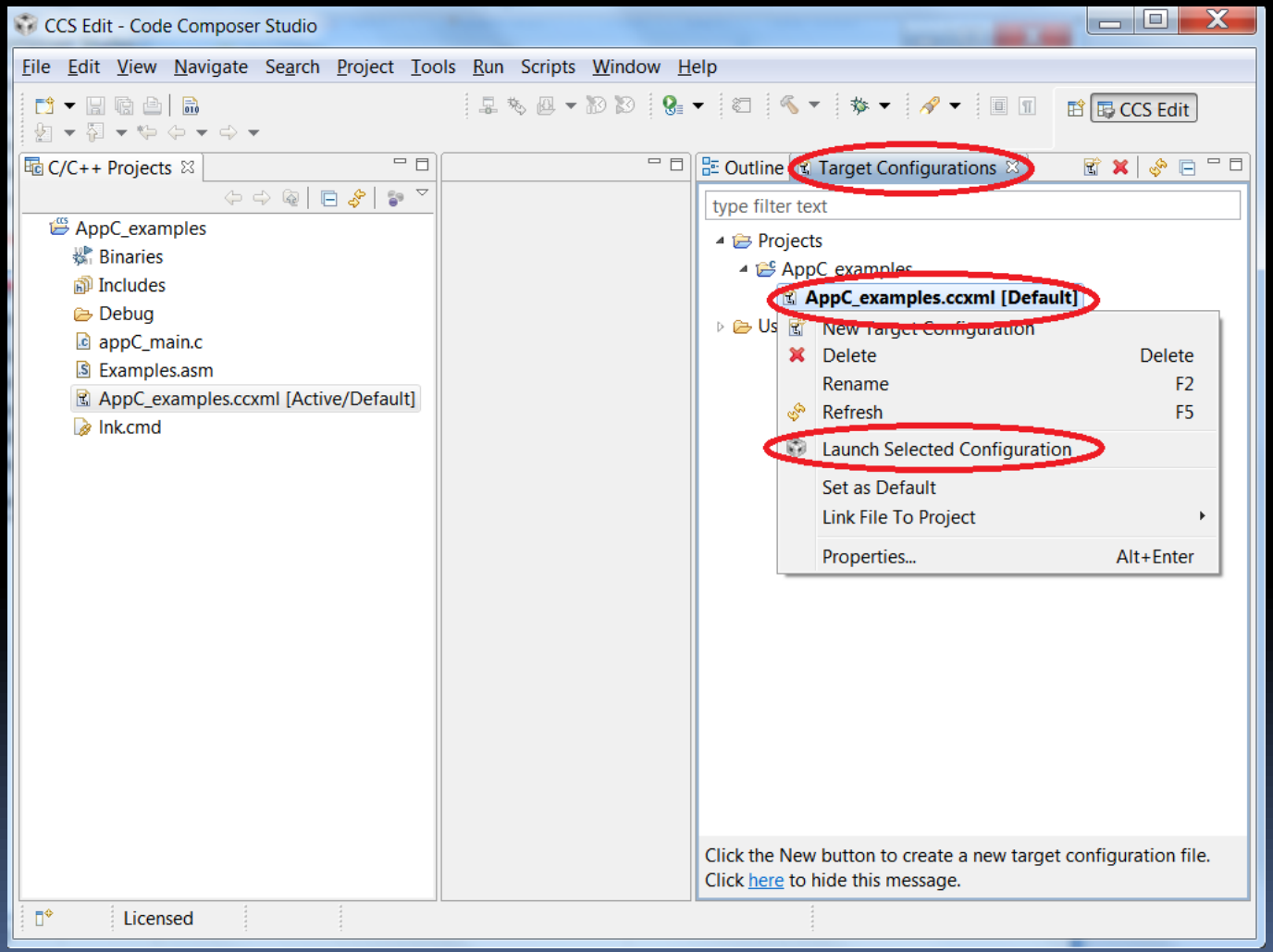


Depends upon the computers settings, the path will be different than what is shown here.

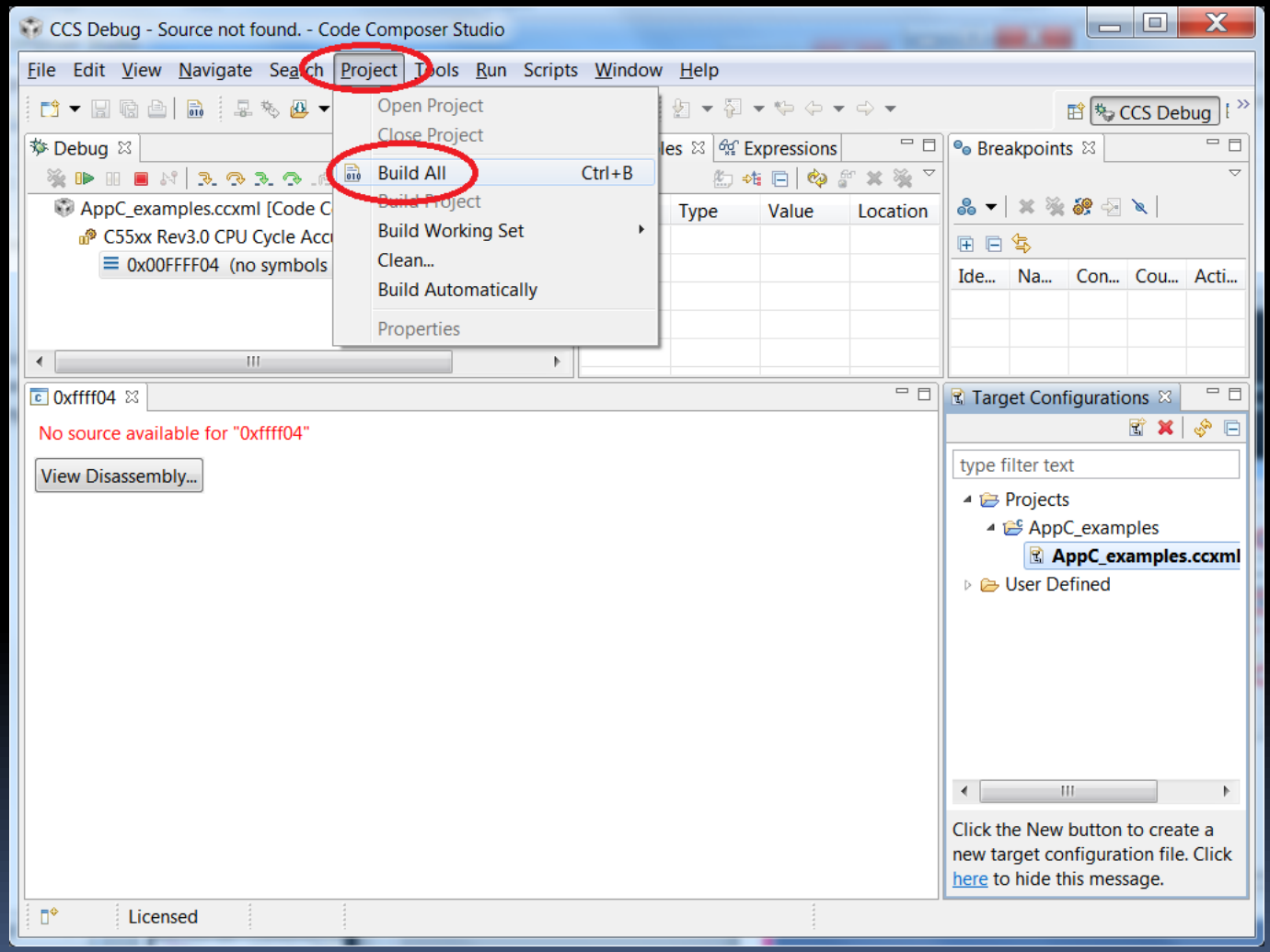
View Target Configuration



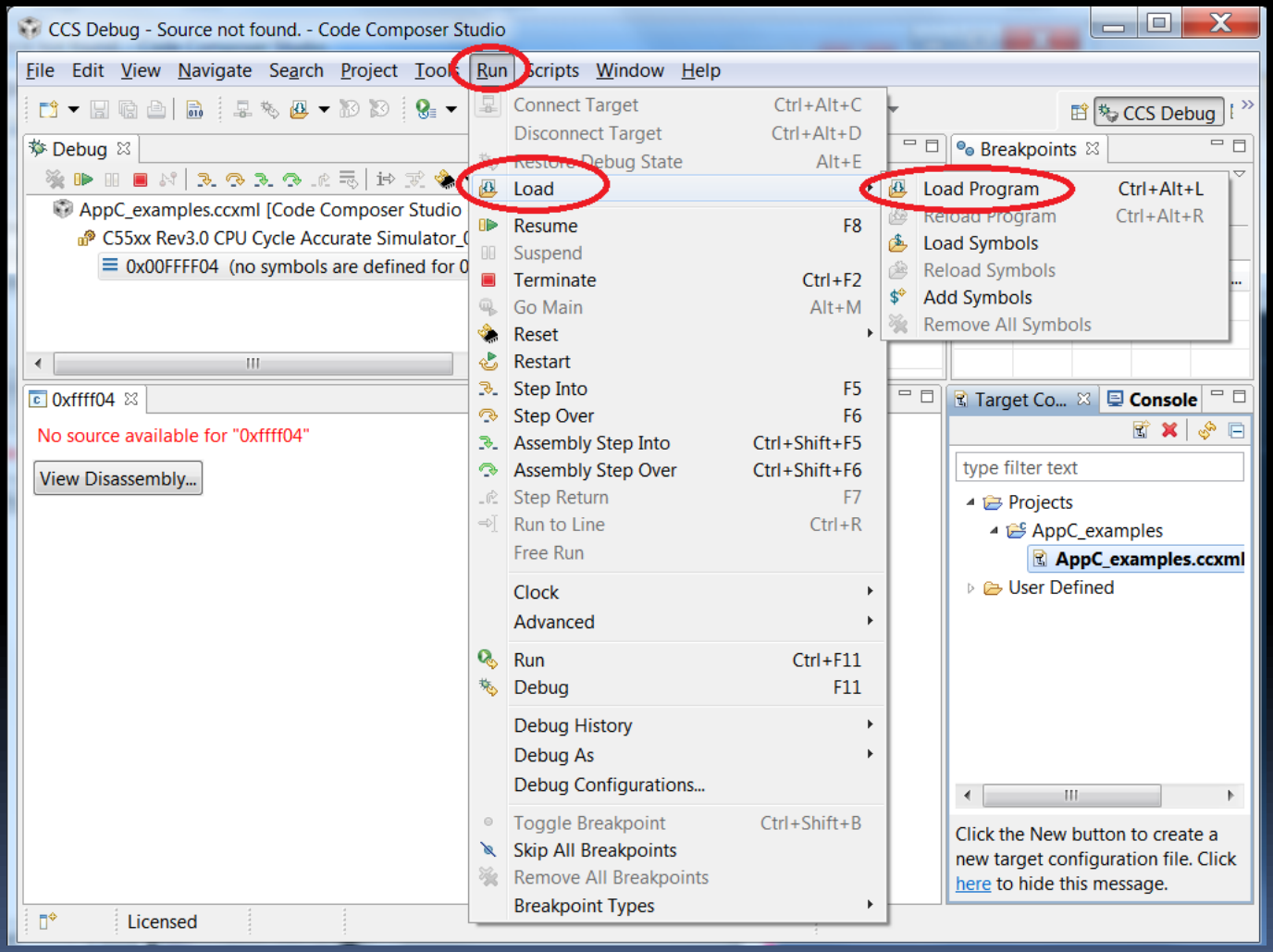
Launch and connect target



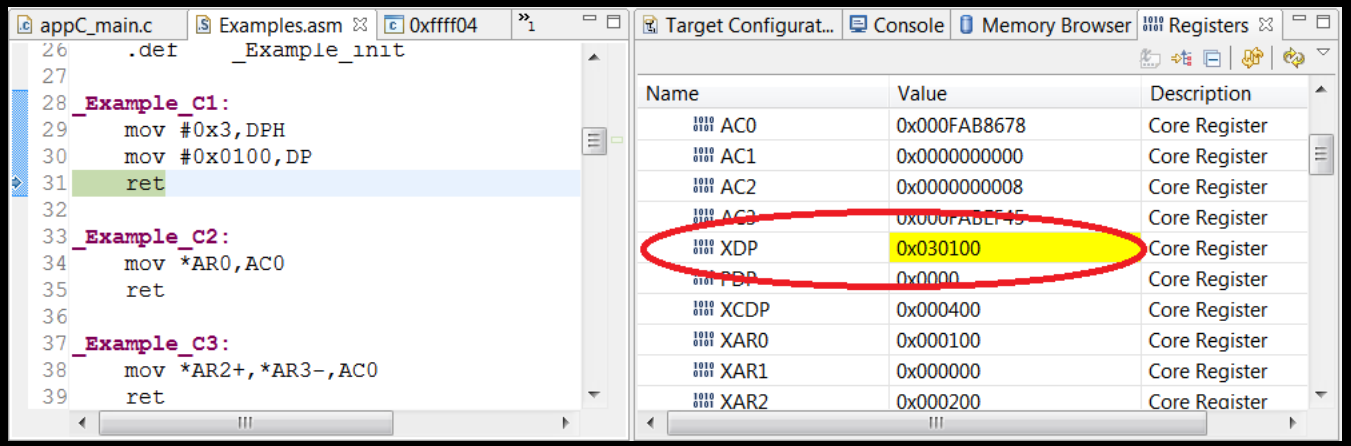
Build experiment



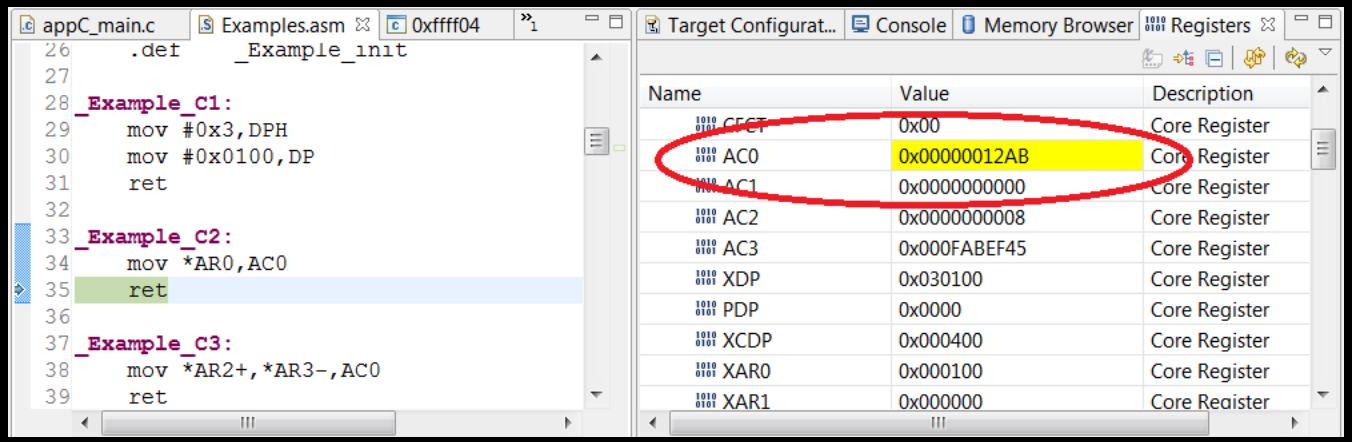
Load program



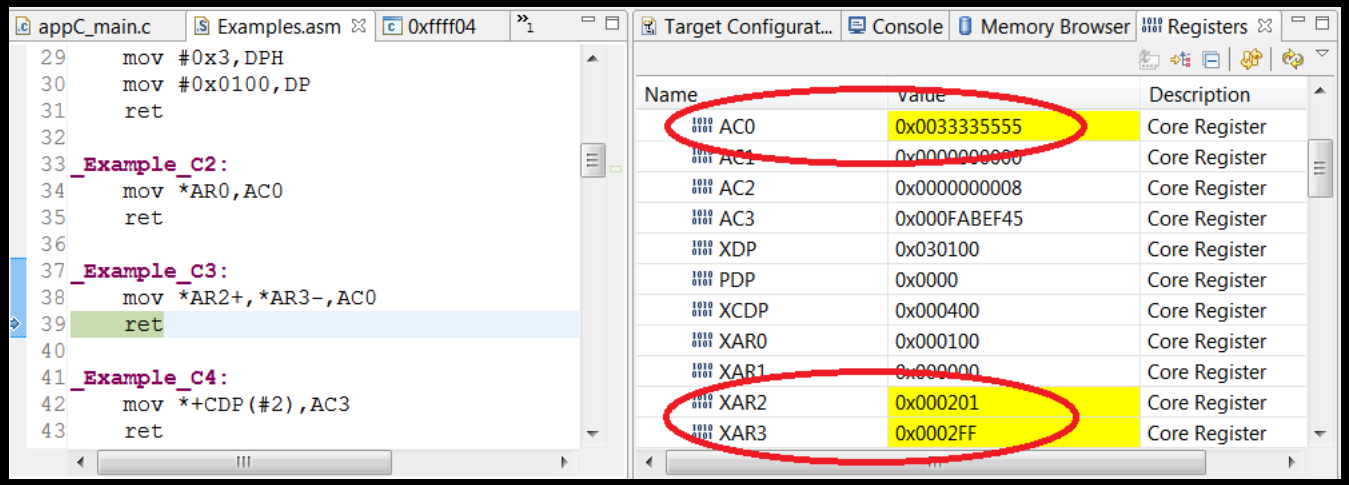
Example_C1


appC_main.c
Examples.asm
0xffff04
26 .def _Example_init
27
28 _Example_C1:
29 mov #0x3,DPH
30 mov #0x0100,DP
31 ret
32
33 _Example_C2:
34 mov *AR0,AC0
35 ret
36
37 _Example_C3:
38 mov *AR2+,*AR3-,AC0
39 ret
Target Configurat...
Console
Memory Browser
Registers
Name
Value
Description
AC0 0x000FAB8678 Core Register
AC1 0x0000000000 Core Register
AC2 0x0000000008 Core Register
XDP 0x030100 Core Register
0x0000 Core Register
XCDP 0x000400 Core Register
XAR0 0x000100 Core Register
XAR1 0x000000 Core Register
XAR2 0x000200 Core Register

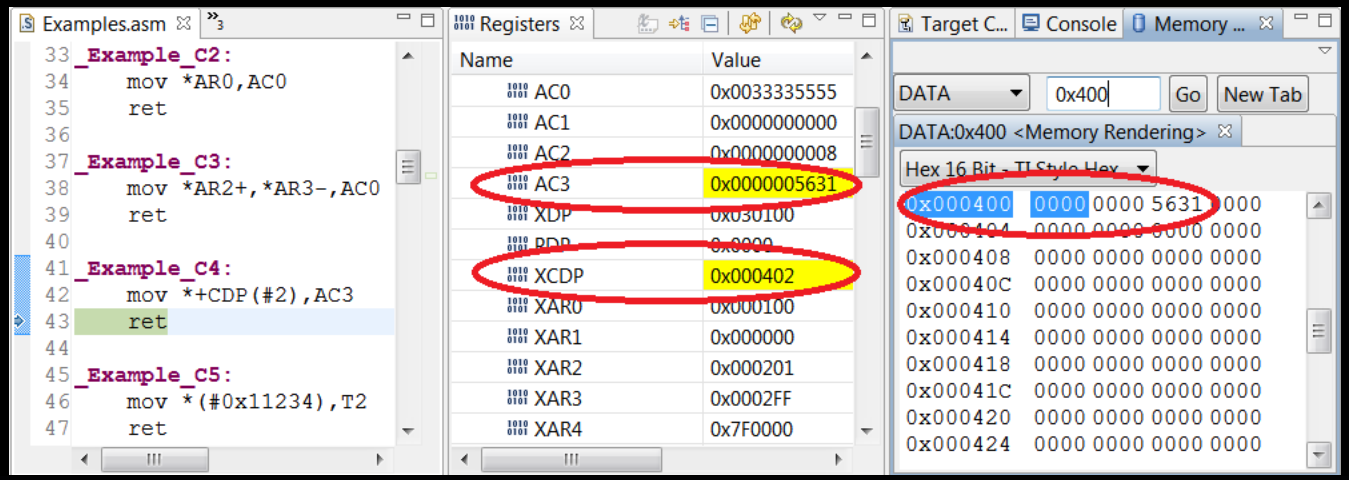
Example_C2


appC_main.c
Examples.asm
0xffff04
26 .def _Example_init
27
28 _Example_C1:
29 mov #0x3,DPH
30 mov #0x0100,DP
31 ret
32
33 _Example_C2:
34 mov *AR0,AC0
35 ret
36
37 _Example_C3:
38 mov *AR2+,*AR3-,AC0
39 ret
Target Configurat...
Console
Memory Browser
Registers
Name
Value
Description
CFCT
0x00
Core Register
AC0
0x00000012AB
Core Register
AC1
0x0000000000
Core Register
AC2
0x0000000008
Core Register
AC3
0x000FABEF45
Core Register
XDP
0x030100
Core Register
PDP
0x0000
Core Register
XCDP
0x000400
Core Register
XAR0
0x000100
Core Register
XAR1
0x000000
Core Register

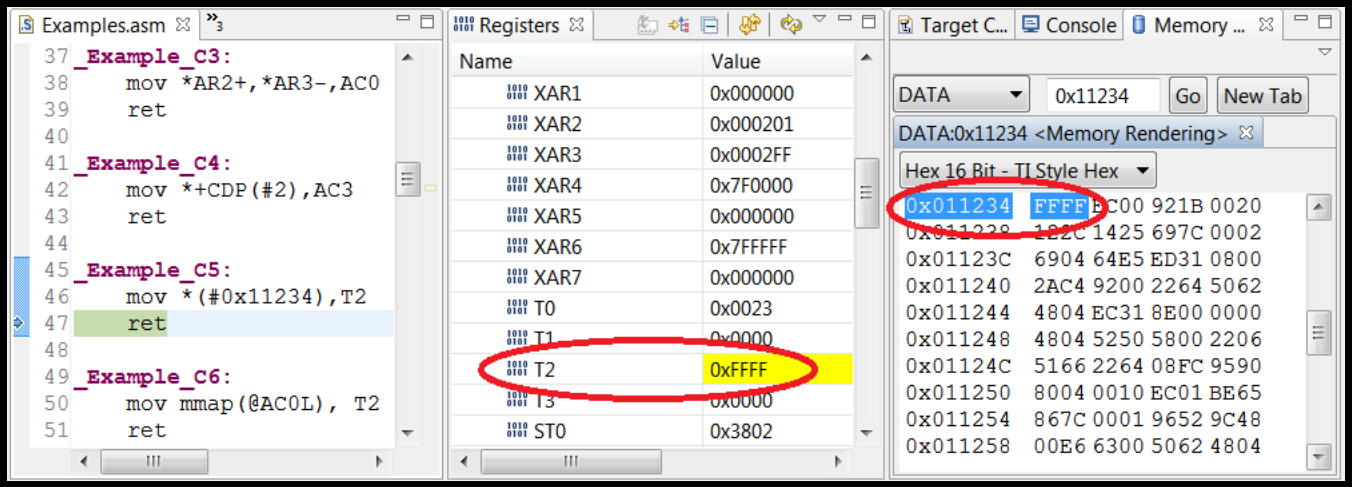
Example_C3


appC_main.c
Examples.asm
0xffff04
29 mov #0x3,DPH
30 mov #0x0100,DP
31 ret
32
33 _Example_C2:
34 mov *AR0,AC0
35 ret
36
37 _Example_C3:
38 mov *AR2+,*AR3-,AC0
39 ret
40
41 _Example_C4:
42 mov *+CDP(#2),AC3
43 ret
Target Configurat...
Console
Memory Browser
Registers
Name
Value
Description
AC0 0x0033335555 Core Register
AC2 0x0000000008 Core Register
AC3 0x000FABEF45 Core Register
XDP 0x030100 Core Register
PDP 0x0000 Core Register
XCDP 0x000400 Core Register
XAR0 0x000100 Core Register
XAR2 0x000201 Core Register
XAR3 0x0002FF Core Register

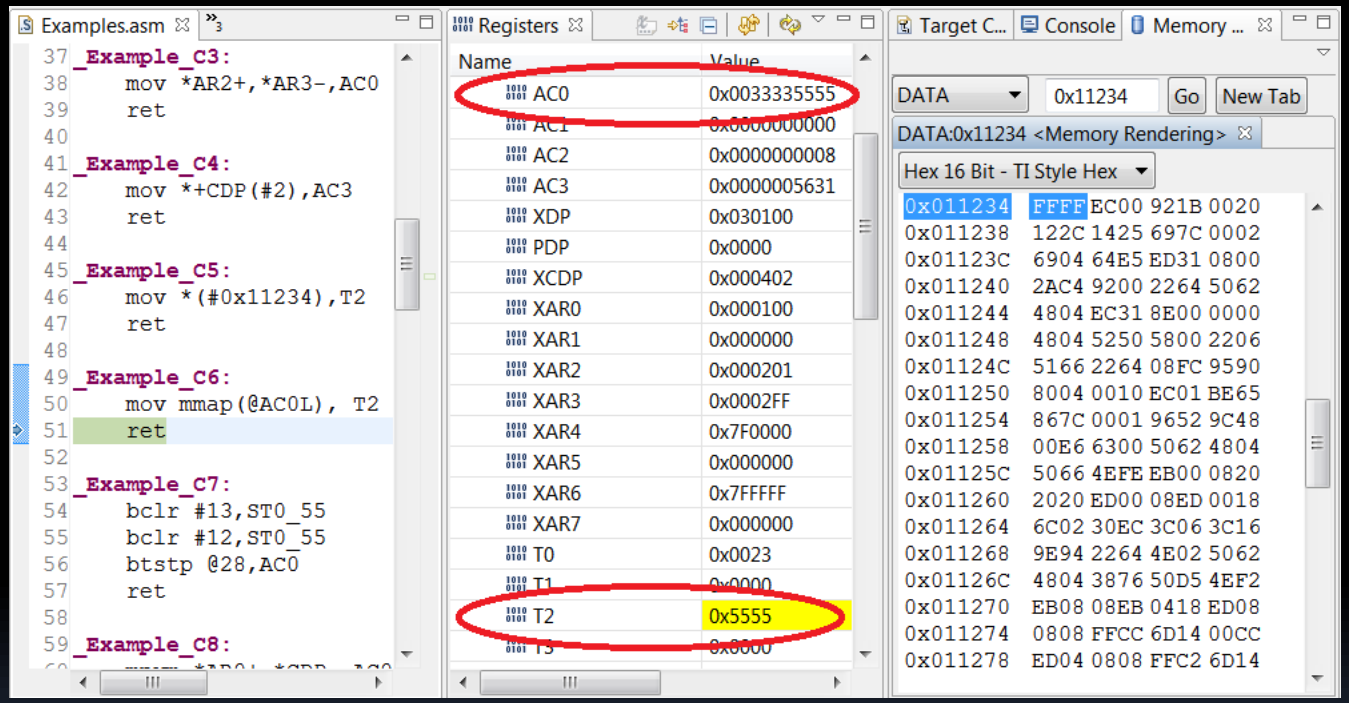
Example_C4


Examples.asm
33 _Example_C2:
34 mov *AR0,AC0
35 ret
36
37 _Example_C3:
38 mov *AR2+,*AR3-,AC0
39 ret
40
41 _Example_C4:
42 mov *+CDP(#2),AC3
43 ret
44
45 _Example_C5:
46 mov *(#0x11234),T2
47 ret
Registers
Name
Value
AC0 0x0033335555
AC1 0x0000000000
AC2 0x0000000008
AC3 0x0000005631
XDP 0x030100
XCDP 0x000402
XAR0 0x000100
XAR1 0x000000
XAR2 0x000201
XAR3 0x0002FF
XAR4 0x7F0000
Target C...
Console
Memory ...
DATA
0x400
Go
New Tab
DATA:0x400 <Memory Rendering>
Hex 16 Bit - TI Style Hex
0x000400 0000 0000 5631 0000
0x000404 0000 0000 0000 0000
0x000408 0000 0000 0000 0000
0x00040C 0000 0000 0000 0000
0x000410 0000 0000 0000 0000
0x000414 0000 0000 0000 0000
0x000418 0000 0000 0000 0000
0x00041C 0000 0000 0000 0000
0x000420 0000 0000 0000 0000
0x000424 0000 0000 0000 0000

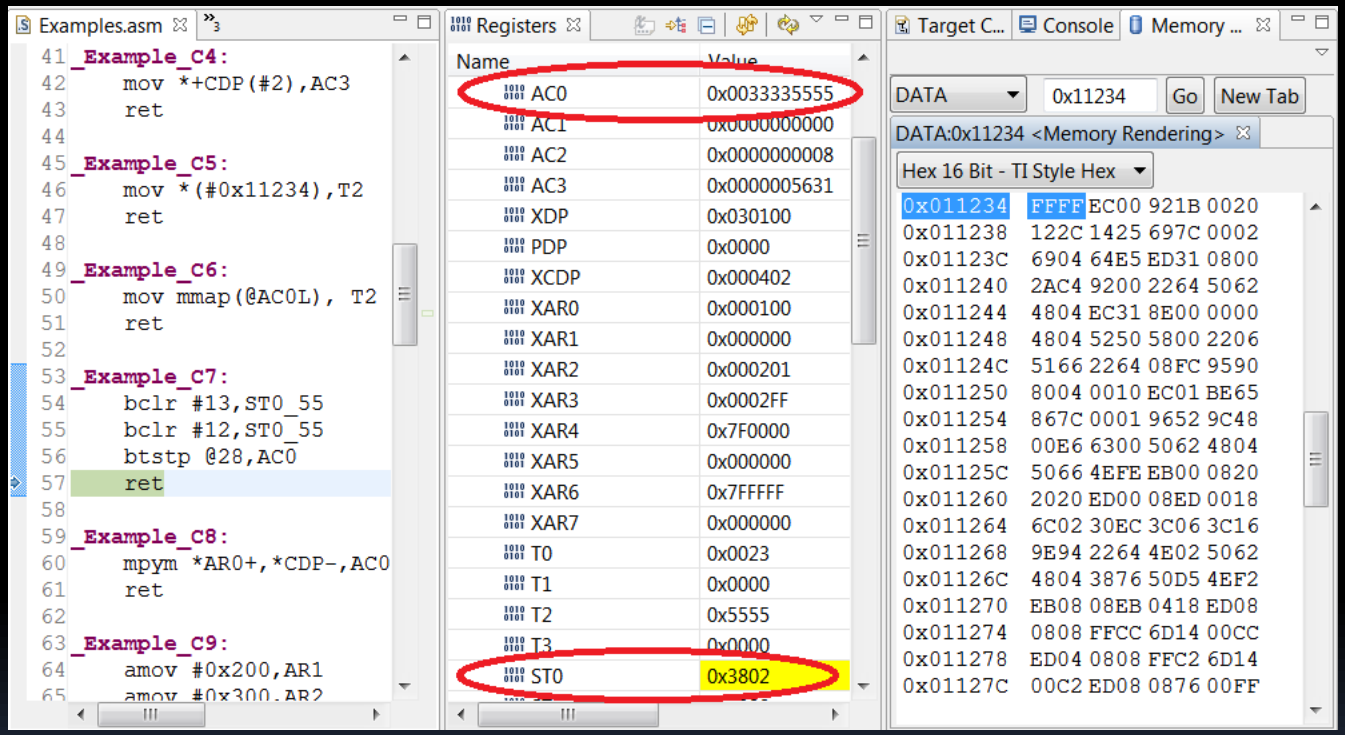
Example_C5


Examples.asm
37 _Example_C3:
38 mov *AR2+,*AR3-,AC0
39 ret
40
41 _Example_C4:
42 mov *+CDP(#2),AC3
43 ret
44
45 _Example_C5:
46 mov *(#0x11234),T2
47 ret
48
49 _Example_C6:
50 mov mmap(@AC0L), T2
51 ret
Registers
Name
Value
XAR1 0x000000
XAR2 0x000201
XAR3 0x0002FF
XAR4 0x7F0000
XAR5 0x000000
XAR6 0x7FFFFF
XAR7 0x000000
T0 0x0023
T1 0x0000
T2 0xFFFF
T3 0x0000
ST0 0x3802
Target C...
Console
Memory ...
DATA
0x11234
Go
New Tab
DATA:0x11234 <Memory Rendering>
Hex 16 Bit - TI Style Hex
0x011234 FFFF EC00 921B 0020
0x01123C 6904 64E5 ED31 0800
0x011240 2AC4 9200 2264 5062
0x011244 4804 EC31 8E00 0000
0x011248 4804 5250 5800 2206
0x01124C 5166 2264 08FC 9590
0x011250 8004 0010 EC01 BE65
0x011254 867C 0001 9652 9C48
0x011258 00E6 6300 5062 4804

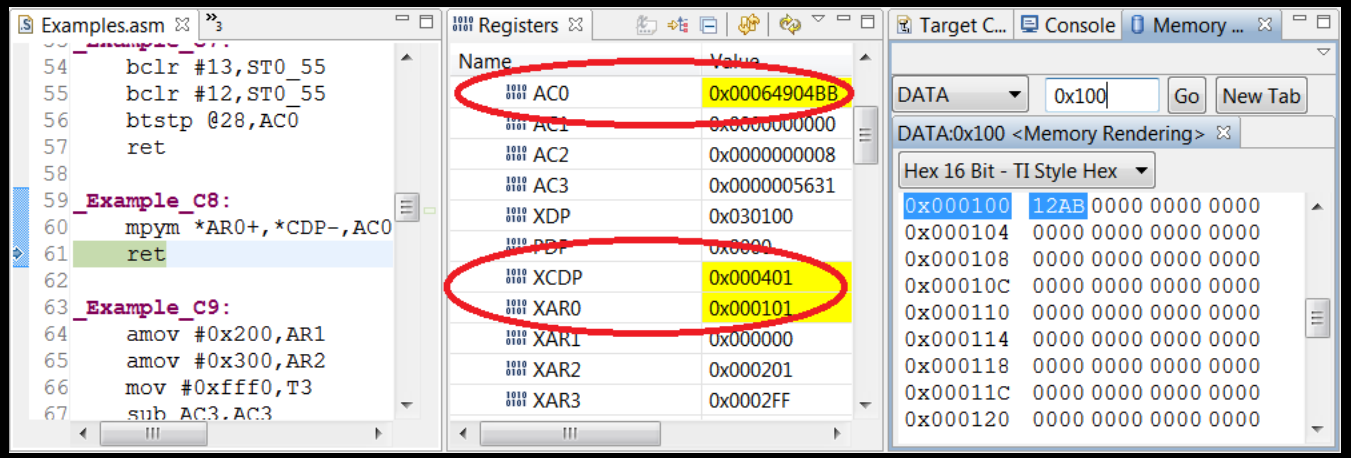
Example_C6


Examples.asm
37 _Example_C3:
38 mov *AR2+,*AR3-,AC0
39 ret
40
41 _Example_C4:
42 mov *+CDP(#2),AC3
43 ret
44
45 _Example_C5:
46 mov *(#0x11234),T2
47 ret
48
49 _Example_C6:
50 mov mmap(@AC0L), T2
51 ret
52
53 _Example_C7:
54 bclr #13,ST0_55
55 bclr #12,ST0_55
56 btstp @28,AC0
57 ret
58
59 _Example_C8:
Registers
Name
Value
AC0 0x0033335555
AC2 0x0000000008
AC3 0x0000005631
XDP 0x030100
PDP 0x0000
XCDP 0x000402
XAR0 0x000100
XAR1 0x000000
XAR2 0x000201
XAR3 0x0002FF
XAR4 0x7F0000
XAR5 0x000000
XAR6 0x7FFFFF
XAR7 0x000000
T0 0x0023
T2 0x5555
Target C...
Console
Memory ...
DATA
0x11234
Go
New Tab
DATA:0x11234 <Memory Rendering>
Hex 16 Bit - TI Style Hex
0x011234 FFFF EC00 921B 0020
0x011238 122C 1425 697C 0002
0x01123C 6904 64E5 ED31 0800
0x011240 2AC4 9200 2264 5062
0x011244 4804 EC31 8E00 0000
0x011248 4804 5250 5800 2206
0x01124C 5166 2264 08FC 9590
0x011250 8004 0010 EC01 BE65
0x011254 867C 0001 9652 9C48
0x011258 00E6 6300 5062 4804
0x01125C 5066 4EFE EB00 0820
0x011260 2020 ED00 08ED 0018
0x011264 6C02 30EC 3C06 3C16
0x011268 9E94 2264 4E02 5062
0x01126C 4804 3876 50D5 4EF2
0x011270 EB08 08EB 0418 ED08
0x011274 0808 FFCC 6D14 00CC
0x011278 ED04 0808 FFC2 6D14

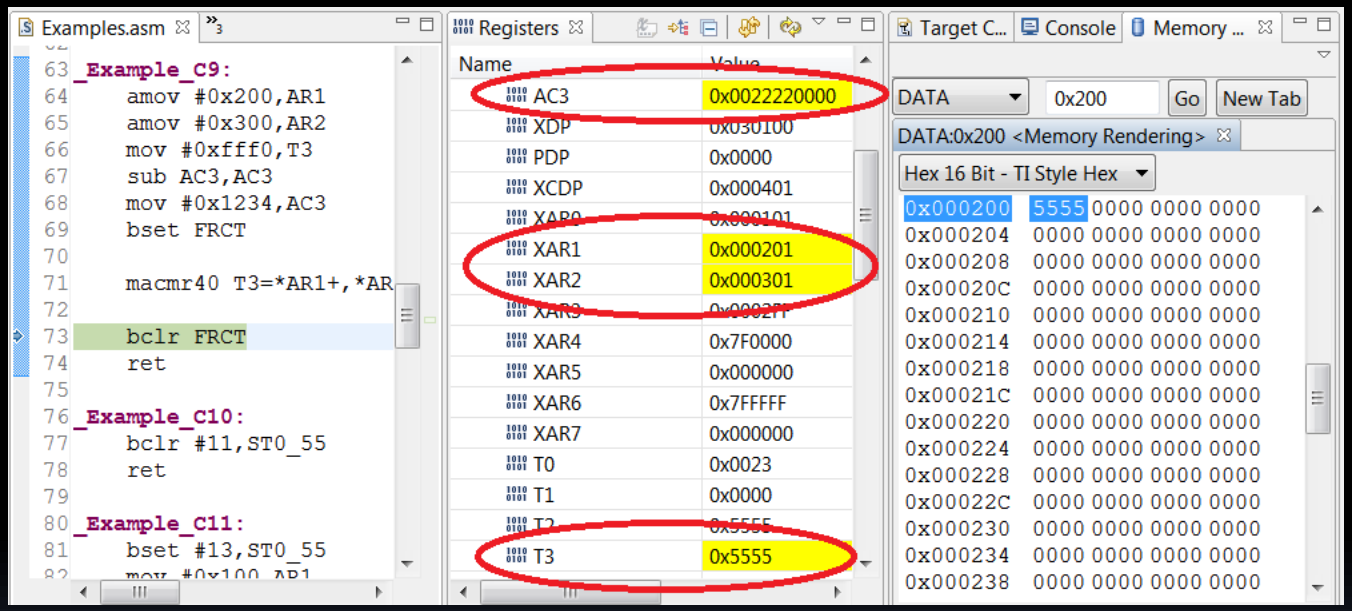
Example_C7


Examples.asm
41 _Example_C4:
42 mov *+CDP(#2),AC3
43 ret
44
45 _Example_C5:
46 mov *(#0x11234),T2
47 ret
48
49 _Example_C6:
50 mov mmap(@AC0L), T2
51 ret
52
53 _Example_C7:
54 bclr #13,ST0_55
55 bclr #12,ST0_55
56 btstp @28,AC0
57 ret
58
59 _Example_C8:
60 mpym *AR0+,*CDP-,AC0
61 ret
62
63 _Example_C9:
64 amov #0x200,AR1
Registers
Name
Value
AC0 0x0033335555
AC1 0x0000000000
AC2 0x0000000008
AC3 0x0000005631
XDP 0x030100
PDP 0x0000
XCDP 0x000402
XAR0 0x000100
XAR1 0x000000
XAR2 0x000201
XAR3 0x0002FF
XAR4 0x7F0000
XAR5 0x000000
XAR6 0x7FFFFF
XAR7 0x000000
T0 0x0023
T1 0x0000
T2 0x5555
T3 0x0000
ST0 0x3802
Target C...
Console
Memory ...
DATA
0x11234
Go
New Tab
DATA:0x11234 <Memory Rendering>
Hex 16 Bit - TI Style Hex
0x011234 FFFF EC00 921B 0020
0x011238 122C 1425 697C 0002
0x01123C 6904 64E5 ED31 0800
0x011240 2AC4 9200 2264 5062
0x011244 4804 EC31 8E00 0000
0x011248 4804 5250 5800 2206
0x01124C 5166 2264 08FC 9590
0x011250 8004 0010 EC01 BE65
0x011254 867C 0001 9652 9C48
0x011258 00E6 6300 5062 4804
0x01125C 5066 4EFE EB00 0820
0x011260 2020 ED00 08ED 0018
0x011264 6C02 30EC 3C06 3C16
0x011268 9E94 2264 4E02 5062
0x01126C 4804 3876 50D5 4EF2
0x011270 EB08 08EB 0418 ED08
0x011274 0808 FFCC 6D14 00CC
0x011278 ED04 0808 FFC2 6D14
0x01127C 00C2 ED08 0876 00FF

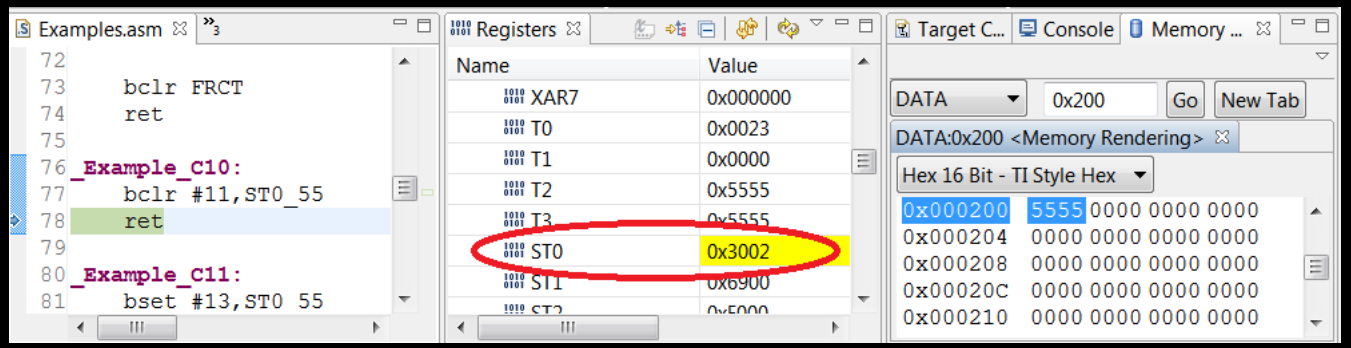
Example_C8


Examples.asm
54 bclr #13,ST0_55
55 bclr #12,ST0_55
56 btstp @28,AC0
57 ret
58
59 _Example_C8:
60 mpym *AR0+,*CDP-,AC0
61 ret
62
63 _Example_C9:
64 amov #0x200,AR1
65 amov #0x300,AR2
66 mov #0xfff0,T3
67 sub AC3,AC3
Registers
Name
Value
AC0 0x00064904BB
AC1 0x0000000000
AC2 0x0000000008
AC3 0x0000005631
XDP 0x030100
PDP 0x0000
XCDP 0x000401
XAR0 0x000101
XAR1 0x000000
XAR2 0x000201
XAR3 0x0002FF
Target C...
Console
Memory ...
DATA
0x100
Go
New Tab
DATA:0x100 <Memory Rendering>
Hex 16 Bit - TI Style Hex
0x000100 12AB 0000 0000 0000
0x000104 0000 0000 0000 0000
0x000108 0000 0000 0000 0000
0x00010C 0000 0000 0000 0000
0x000110 0000 0000 0000 0000
0x000114 0000 0000 0000 0000
0x000118 0000 0000 0000 0000
0x00011C 0000 0000 0000 0000
0x000120 0000 0000 0000 0000

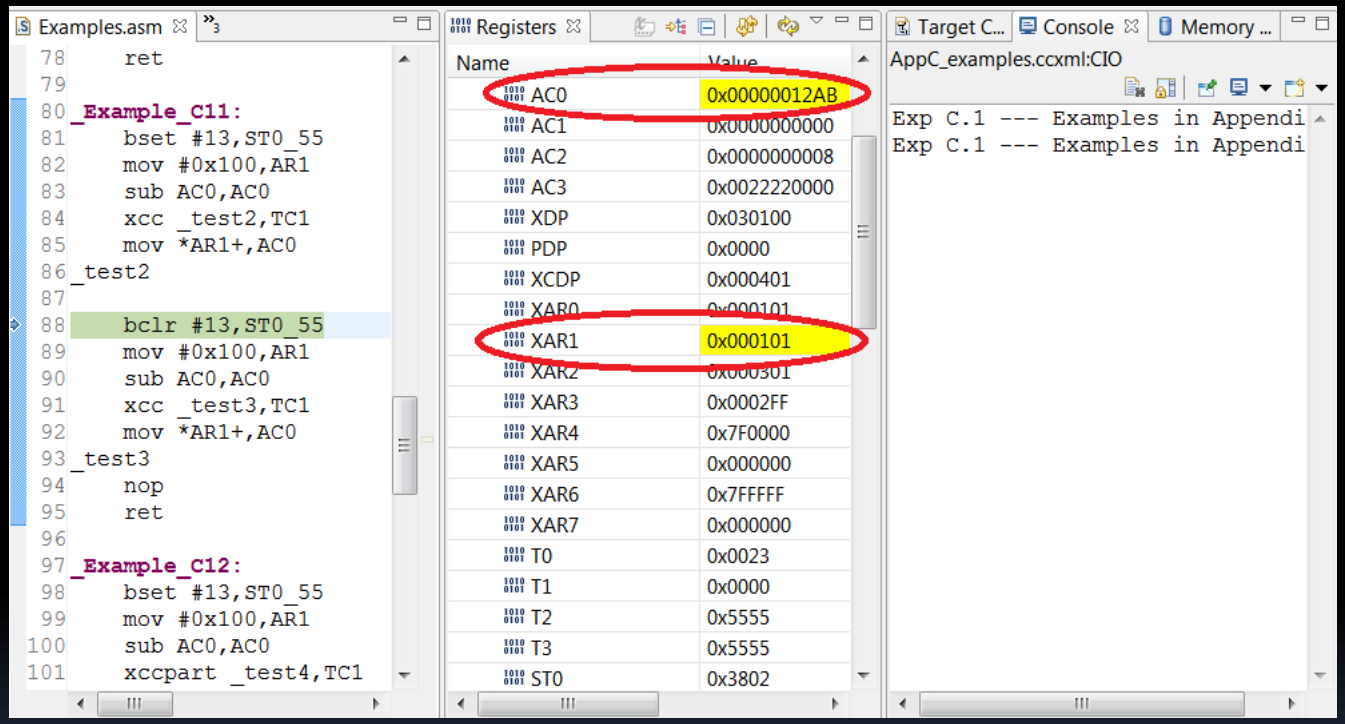
Example_C9


Examples.asm
63 _Example_C9:
64 amov #0x200,AR1
65 amov #0x300,AR2
66 mov #0xfff0,T3
67 sub AC3,AC3
68 mov #0x1234,AC3
69 bset FRCT
70
71 macmr40 T3=*AR1+,*AR
72
73 bclr FRCT
74 ret
75
76 _Example_C10:
77 bclr #11,ST0_55
78 ret
79
80 _Example_C11:
81 bset #13,ST0_55
Registers
Name
Value
AC3 0x0022220000
XDP 0x030100
PDP 0x0000
XCDP 0x000401
XAR1 0x000201
XAR2 0x000301
XAR4 0x7F0000
XAR5 0x000000
XAR6 0x7FFFFF
XAR7 0x000000
T0 0x0023
T1 0x0000
T3 0x5555
Target C...
Console
Memory ...
DATA
0x200
Go
New Tab
DATA:0x200 <Memory Rendering>
Hex 16 Bit - TI Style Hex
0x000200 5555 0000 0000 0000
0x000204 0000 0000 0000 0000
0x000208 0000 0000 0000 0000
0x00020C 0000 0000 0000 0000
0x000210 0000 0000 0000 0000
0x000214 0000 0000 0000 0000
0x000218 0000 0000 0000 0000
0x00021C 0000 0000 0000 0000
0x000220 0000 0000 0000 0000
0x000224 0000 0000 0000 0000
0x000228 0000 0000 0000 0000
0x00022C 0000 0000 0000 0000
0x000230 0000 0000 0000 0000
0x000234 0000 0000 0000 0000
0x000238 0000 0000 0000 0000

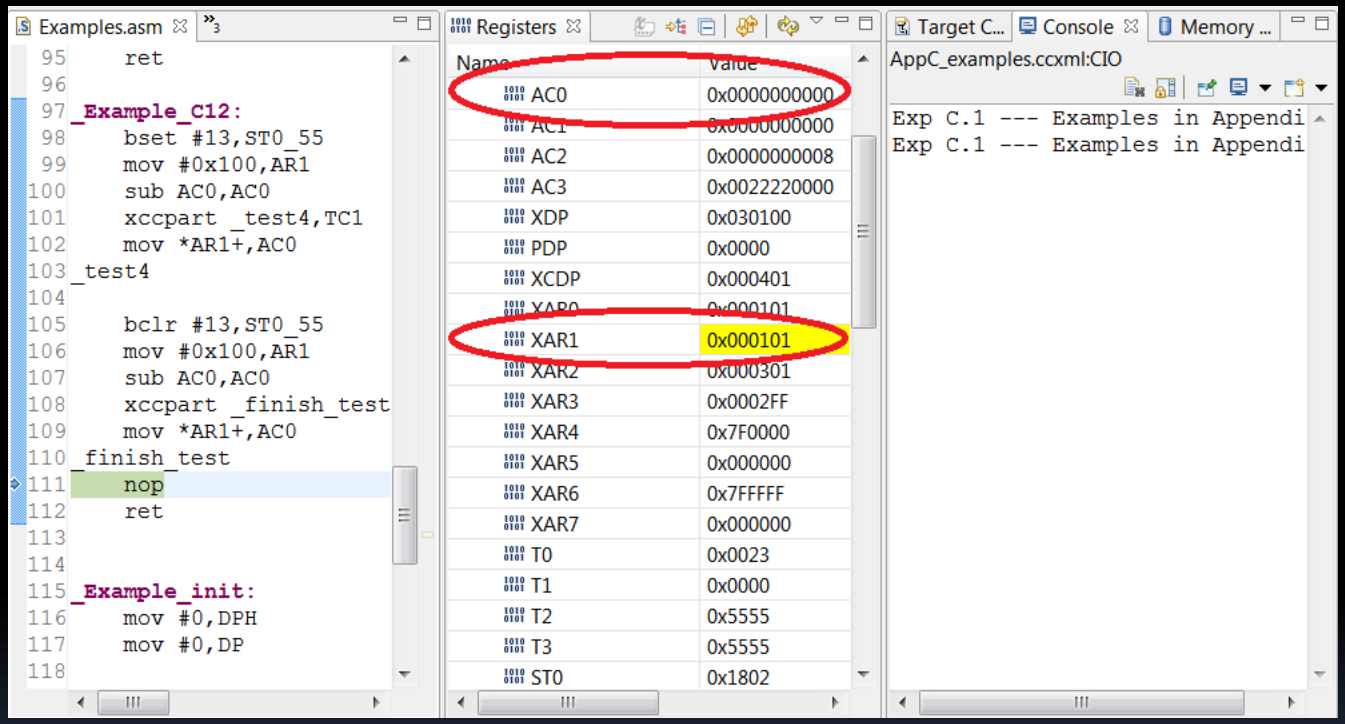
Example_C10


Examples.asm
72
73 bclr FRCT
74 ret
75
76 _Example_C10:
77 bclr #11,ST0_55
78 ret
79
80 _Example_C11:
81 bset #13,ST0 55
Registers
Name
Value
XAR7
0x000000
T0
0x0023
T1
0x0000
T2
0x5555
T3
0x5555
ST0
0x3002
ST1
0x6900
Target C...
Console
Memory ...
DATA
0x200
Go
New Tab
DATA:0x200 <Memory Rendering>
Hex 16 Bit - TI Style Hex
0x000200 5555 0000 0000 0000
0x000204 0000 0000 0000 0000
0x000208 0000 0000 0000 0000
0x00020C 0000 0000 0000 0000
0x000210 0000 0000 0000 0000

Example_C11 (True condition)



Example_C12 (False condition)



References

- http://processors.wiki.ti.com/index.php/Category:CCS
- http://processors.wiki.ti.com/index.php/Category:Code_Composer_Studio_v5
- TMS320C5505 Fixed-Point Digital Signal Processor, SPRS660E, Jan 2012
- TMS320C55x Assembly Language Tools v 4.4, SPRU280I, Nov 2011
- TMS320C55x Optimizing C/C++ Compiler v 4.4, SPRU281G, Dec 2011
- C55x v3.x CPU Mnemonic Instruction Set Reference Guide, SWPU067E, Jun 2009