Case 1 :

1) Sys_intvecs.asm file of Bootloader

```
    .sect ".intvecs"
    .arm

;-----------------------------------------------
; import reference for interrupt routines

        .ref _c_int00
        .ref _dabort
        .ref phantomInterrupt
        .def resetEntry

;-----------------------------------------------
; interrupt vectors

resetEntry
        b   _c_int00
undefEntry
        b   undefEntry
svcEntry
        b   svcEntry
prefetchEntry
        b   prefetchEntry
        b   _dabort
        b   phantomInterrupt
        ldr pc,[pc,#-0x1b0]
        ldr pc,[pc,#-0x1b0]
```

2) Sys_link.cmd file of Bootloader

```
--retain="*(.intvecs)"

/* USER CODE BEGIN (1) */
/* USER CODE END */

/*----------------------------------------------------------
/* Memory Map

MEMORY
{
    VECTORS (X)  : origin=0x00000000 length=0x00000020
    FLASH0  (RX) : origin=0x00000020 length=0x0013FFE0
    STACKS  (RW) : origin=0x08000000 length=0x00001500
    RAM     (RW) : origin=0x08001500 length=0x0002EB00

/* USER CODE BEGIN (2) */
/* USER CODE END */

SECTIONS
{
    .intvecs : {} > VECTORS
 /*   .TI.ramfunc align(32) : { -l F021_API_CortexR4_BE_V3D16.lib(.text) }
                               LOAD=FLASH0, RUN=RAM,
                               LOAD_START(RamfuncsLoadStart),
                               RUN_START(RamfuncsRunStart),
                               SIZE(RamfuncsLoadSize)
   */
    .text    : {} > FLASH0
    .const   : {} > FLASH0
    .cinit   : {} > FLASH0
    .pinit   : {} > FLASH0
    .bss     : {} > RAM
    .data    : {} > RAM
    .sysmem  : {} > RAM


/* USER CODE BEGIN (6) */
/* USER CODE END */
```

```
    GROUP
    {
       .TI.ramfunc
       { -l F021_API_CortexR4_BE_V3D16.lib(.text)}

    }                   LOAD = FLASH0,
                        RUN = RAM,
                        LOAD_START(RamfuncsLoadStart),
                        RUN_START(RamfuncsRunStart),
                        SIZE(RamfuncsLoadSize),
                        ALIGN(4)
}
```

3) Bootloader Intel Hex file format:

```
:20000000EA0020D6EAFFFFFEEAFFFFFEEAFFFFFEEA0026A4EA002BECE51FF1B0E51FF1B04F
:20002000E5D0C122E3CCC07FE35C0080E3A0C0A00AFFFFFAE5C0C121E3C22102E590C128E9
:20004000E20CC102E580C128E590C128E182C00CE580C128E5C01123E5D0C122E3CCC07F67
:20006000E35C00800AFFFFFBE12FFF1EE92D4038E2413001E1A0C2A3E203301FE080E10C48
:20008000E3A0C001E59EE088E11E031C13A000001A000010E5D03102E3C3307FE353008043
:2000A000E3A030870AFFFFFAE5C03101E59FE134E3A03008E49E4004E0805004E4D2400168
:2000C000E2533001E5C541101AFFFFF9E5C01103E1A0000CE8BD8038E8BD8038E241C001CA
:2000E000E1A022ACE20CC01FE0803102E3A02001E5933088E1130C1213A000001A00000896
:20010000E5D0C102E3CCC07FE35C0080E3A0C0840AFFFFFAE5C0C101E5C01103E1A000024E
:20012000E12FFF1EE12FFF1EE241C001E1A012ACE0800101E3A01001E20CC01FE590008882
:20014000E0000C11E12FFF1EE241C001E1A012ACE0800101E3A01001E20CC01FE590009C7E
:20016000E0000C11E12FFF1EE241C001E1A012ACE0800101E3A01001E20CC01FE59000C436
:20018000E0000C11E12FFF1EE590C1E0E20C0001E12FFF1EE590C1E0E3CCC002E18CC081CE
:2001A000E580C1E0E590C1E4E3CCC002E18CC082E580C1E4E12FFF1EE590C1E0E3CCC0043F
:2001C000E18CC101E580C1E0E590C1E4E3CCC004E18CC102E580C1E4E12FFF1EE590C1E4DC
:2001E000E20C0001E12FFF1E0000F1A4FFF7DC00C00007FF0004000E00040008FFF7DF02C1
:20020000FFF7DF22E51F1020E92D4FF8E59FCFD8E581C000E591C004E3E0C000E581C0041E
:20022000E59FCFC8E3A04000E58140D8E58140DCE581C080E5D1C102E3CCC07FE35C008014
:20024000151FE0580AFFFFFAE581E104E3A0C21EE581C108E3013008E581310CE3A020F8F9
:20026000E5C12101E3A0B001E5C1B103E5D1C122E3CCC07FE35C00800AFFFFFBE581E12474
:20028000E3A0C22EE581C128E3A0B002E581312CE5C12121E5C1B123E5D1C102E3CCC07FDB
:2002A000E35C00800AFFFFFBE581E104E3A0C23EE581C108E3A0B003E581310CE5C12101DE
:2002C000E5C1B103E5D1C122E3CCC07FE35C00800AFFFFFBE581E124E3A0C24EE581C1282E
:2002E000E3A0B004E581312CE5C12121E5C1B123E5D1C102E3CCC07FE35C00800AFFFFFB79
:20030000E581E104E3A0C25EE581C108E3A0B005E581310CE5C12101E5C1B103E5D1C1222A
:20032000E3CCC07FE35C00800AFFFFFBE581E124E3A0C26EE581C128E3A0B006E581312CA4
:20034000E5C12121E5C1B123E5D1C102E3CCC07FE35C00800AFFFFFBE581E104E3A0C27E04
:20036000E581C108E3A0B007E581310CE5C12101E5C1B103E5D1C122E3CCC07FE35C008009
:200380000AFFFFFBE581E124E3A0C28EE581C128E3A0B008E581312CE5C12121E5C1B1236D
:2003A000E5D1C102E3CCC07FE35C00800AFFFFFBE581E104E3A0C29EE581C108E3A0B0097B
:2003C000E581310CE5C12101E5C1B103E5D1C122E3CCC07FE35C00800AFFFFFBE581E124A4
:2003E000E3A0C2AEE581C128E3A0B00AE581312CE5C12121E5C1B123E5D1C102E3CCC07FF2
:20040000E35C00800AFFFFFBE581E104E3A0C2BEE581C108E3A0B00BE581310CE5C12101E4
```

4) Memory Browser Data while debugging 0x00000000 Address onwards:

0x0 - 0x00000000 <Memory Rendering 1>

32-Bit Hex - TI Style

```
0x00000000  $../source/Driver/sys_intvecs.asm:53:66$, resetEntry
0x00000000  EA0020D6
0x00000004  undefEntry
0x00000004  EAFFFFFE
0x00000008  svcEntry
0x00000008  EAFFFFFE
0x0000000C  prefetchEntry
0x0000000C  EAFFFFFE EA0026A4 EA002BEC E51FF1B0 E51FF1B0
0x00000020  $C$L1, canUpdateID
0x00000020  E5D0C122 E3CCC07F E35C0080 E3A0C0A0 0AFFFFFA E5C0C121 E3C22102 E590C128 E20CC102 E580C128 E590C128 E182C00C E580C128 E5C01123
0x00000058  $C$L2
0x00000058  E5D0C122 E3CCC07F E35C0080 0AFFFFFB E12FFF1E
0x0000006C  canTransmit
0x0000006C  E92D4038 E2413001 E1A0C2A3 E203301F E080E10C E3A0C001 E59EE088 E11E031C 13A00000 1A000010
0x00000094  $C$L3
0x00000094  E5D03102 E3C3307F E3530080 E3A03087 0AFFFFFA E5C03101 E59FE134 E3A03008
0x000000B4  $C$L4
0x000000B4  E49E4004 E0805004 E4D24001 E2533001 E5C54110 1AFFFFF9 E5C01103 E1A0000C E8BD8038
0x000000D8  $C$L5
0x000000D8  E8BD8038
0x000000DC  canSendRemoteFrame
0x000000DC  E241C001 E1A022AC E20CC01F E0803102 E3A02001 E5933088 E1130C12 13A00000 1A000008
```

Case 2)

1) Application sys_intvecs.asm file

```
    .sect ".intvecs"
    .arm

;---------------------------------------
; import reference for interrupt routines

    .ref _c_int00
    .ref _dabort
    .ref phantomInterrupt
    .def resetEntry

;---------------------------------------
; interrupt vectors

resetEntry
        b   _c_int00
undefEntry
        b   undefEntry
svcEntry
        b   svcEntry
prefetchEntry
        b   prefetchEntry
        b   _dabort
        b   phantomInterrupt
        ldr pc,[pc,#-0x1b0]
        ldr pc,[pc,#-0x1b0]
```

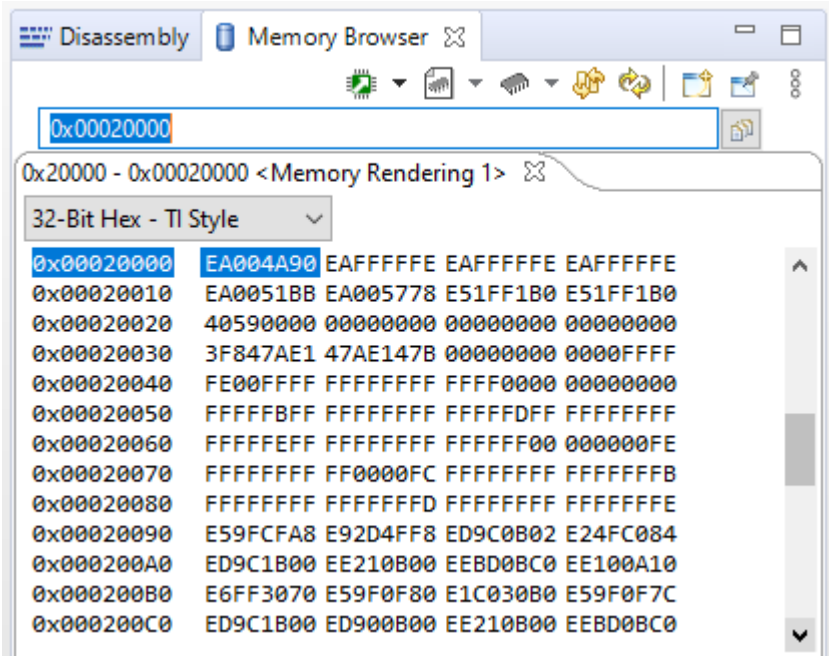
2) Application sys_link.cmd File

```
MEMORY
{
    VECTORS (X)  : origin=0x00020000 length=0x00000020
    FLASH0  (RX) : origin=0x00020020 length=0x0011FFE0
    STACKS  (RW) : origin=0x08000000 length=0x00001500
    RAM     (RW) : origin=0x08001500 length=0x0002EB00

/* USER CODE BEGIN (2) */
/* USER CODE END */
}

/* USER CODE BEGIN (3) */
/* USER CODE END */

/*----------------------------------------------------------------------------*/
/* Section Configuration                                                      */

SECTIONS
{
    .intvecs : {} > VECTORS
    .TI.ramfunc align(32) : {   -l F021_API_CortexR4_BE_V3D16.lib(.text) }
                                LOAD=FLASH0, RUN=RAM,
                                LOAD_START(RamfuncsLoadStart),
                                RUN_START(RamfuncsRunStart),
                                SIZE(RamfuncsLoadSize)
    .text    : {} > FLASH0
    .const   : {} > FLASH0
    .cinit   : {} > FLASH0
    .pinit   : {} > FLASH0
    .bss     : {} > RAM
    .data    : {} > RAM
    .sysmem  : {} > RAM
```

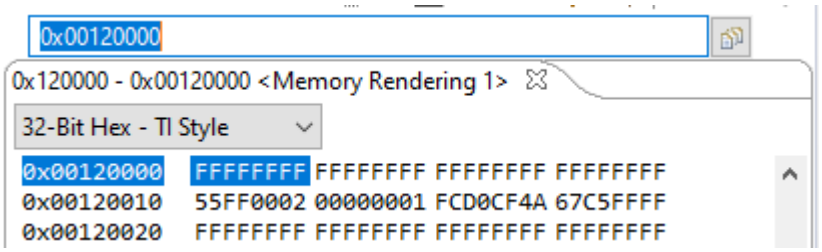
3) Application Hex File

```
:020000040002F8
:20000000EA004A90EAFFFFFEEAFFFFFEEAFFFFFEEA0051BBEA005778E51FF1B0E51FF1B071
:20002000405900000000000000000000000000003F847AE147AE147B0000000000000FFFF87
:20004000FE00FFFFFFFFFFFFFFFF00000000000FFFFFBFFFFFFFFFFFFFFFDFFFFFFFFFFC0
:20006000FFFFFEFFFFFFFFFFFFFFFF00000000FEFFFFFFFFFFF0000FCFFFFFFFFFFFFFFBA3
:20008000FFFFFFFFFFFFFFFDFFFFFFFFFFFFFFFFEE59FCFA8E92D4FF8ED9C0B02E24FC08410
:2000A000ED9C1B00EE210B00EEBD0BC0EE100A10E6FF3070E59F0F80E1C030B0E59F0F7CCC
:2000C000ED9C1B00ED900B00EE210B00EEBD0BC0EE10CA10E6FF207CE59FCF64E1CC20B0D7
:2000E000E59FCF64E24F10B4E59CC000E8910060E59FEF54E006C00CE1A0500CE24FC0DC17
:20010000ED9E1B02ED9C0B00EE310B40E24FE0E4E58DE000ED9E1B00EE800B01EEBD0BC05C
:20012000EE10EA10E59F4F1CE6FFE07EE1A0E80EE18E7005E1D4E0B2E3A00000E1806000AF
:20014000E18E5006E1D4E0B0E1A04800E184482EE1A0E80EE18E5005E59FEEF0E18060078C
:20016000E1844006E88E0030E59F4EE4E59FEEE0E1D441B0E1A05800E1A02802E1DEE1B2AA
:20018000E1855824E1A04804E184400EE185E000E1A05003E185E00EE182200EE59FEEB4D8
:2001A000E1803004E1803003E88E000CE59FEEA8ED9E0B28EEBD0BC0E24F2F5EE59F7E9CEA
```

4) Memory Browser Data at location 0x00020000 in debug mode



5) Shared Memory Data to Validate Application at location 0x120000
Flag Value 0x55 is written after CRC Match

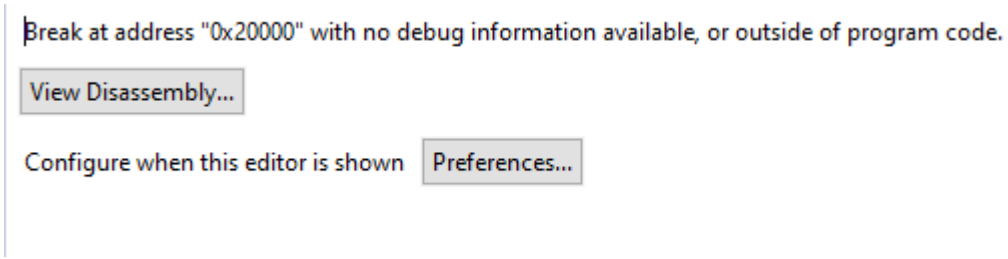


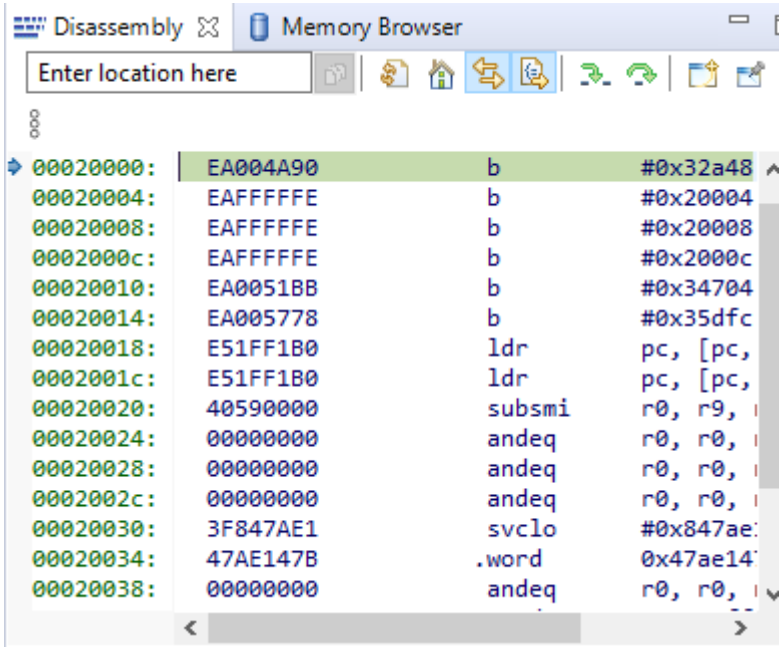
6) Breakpoint at Jump to Application from Bootloader

```
314             else if (FLSHM_APPVLDN_PASS == ValidStat)
315             {
316                 /* Application verified, Jump now */
317                 FLSHM_JumpToApp();
318             }
319             /* Application verification failed */
```

```
32 STATIC FUNC(void, FLSHM_CODE) FLSHM_JumpToApp(void)
33 {
34     /*Jump to Application*/
35    //  FLSHM_APP_JUMP_ADDRESS;
36  //    asm(" LDR r1,=0x20000");
37     asm(" mov r14, #0x20000");
38    // asm(" r14, #0x20000");
39         asm(" bx r14");
```

7) Jump to 0x20000 address and disassembly listing



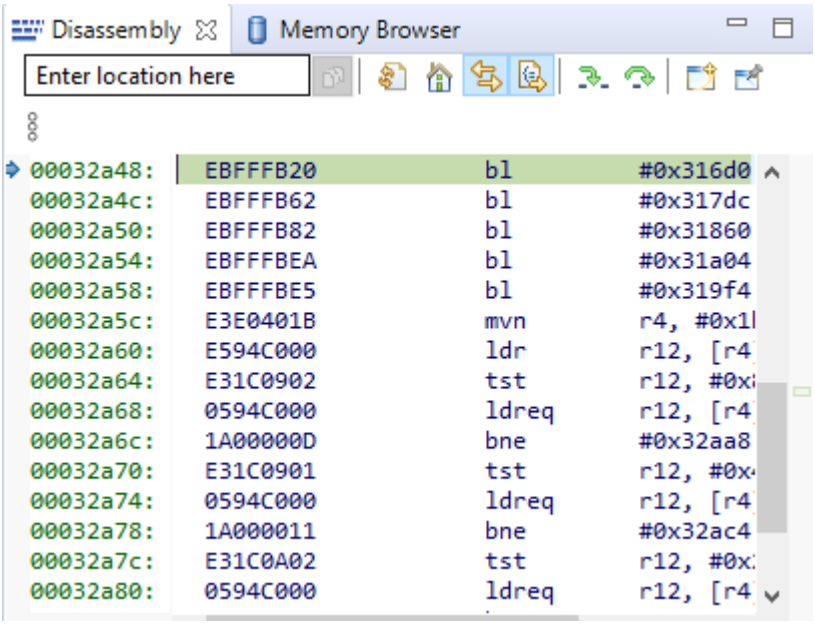


Next Step

Break at address "0x32a48" with no debug information available, or outside of program code.

View Disassembly...

Configure when this editor is shown Preferences...



Application Doen't execute properly. Reset occurs , again goes to jump instruction ;

Jumps to 0x20000 ;

Executes few steps as observed from disassembly listing, again resets.