

# Application Note



## Synaptic Labs' Memory Region Bridge Error in the NIOS II SBT for Eclipse

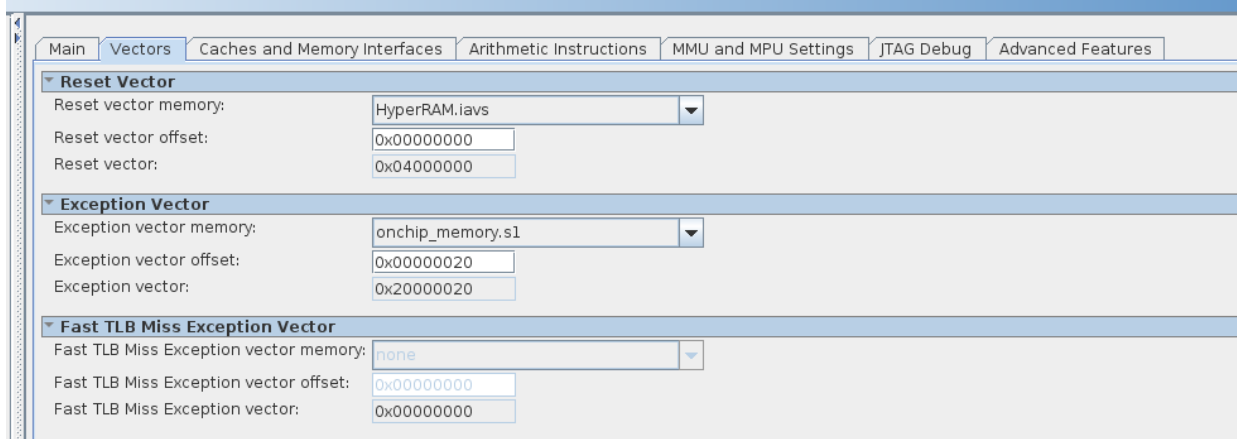
S/Labs' Memory bridge has two functions :

- to generate a memory region and
- to generate the HAL driver for the HyperFlash in the Nios II SBT for Eclipse, but **ONLY** when S/Labs Memory Region Bridge is configured in Flash mode.

*(Please note that S/Labs' Memory Region Bridge is provided as is (with no support). The user is free to use alternative ways to split a memory region into multiple memory regions).*

### Required : HyperFlash HAL drivers linker region

The device drivers *only works* when then the Nios II exception vector is set to onchip memory. This is required because the memory region bridge software drivers are specifically loaded to the exception vector region.



### HyperFlash HAL drivers initialization

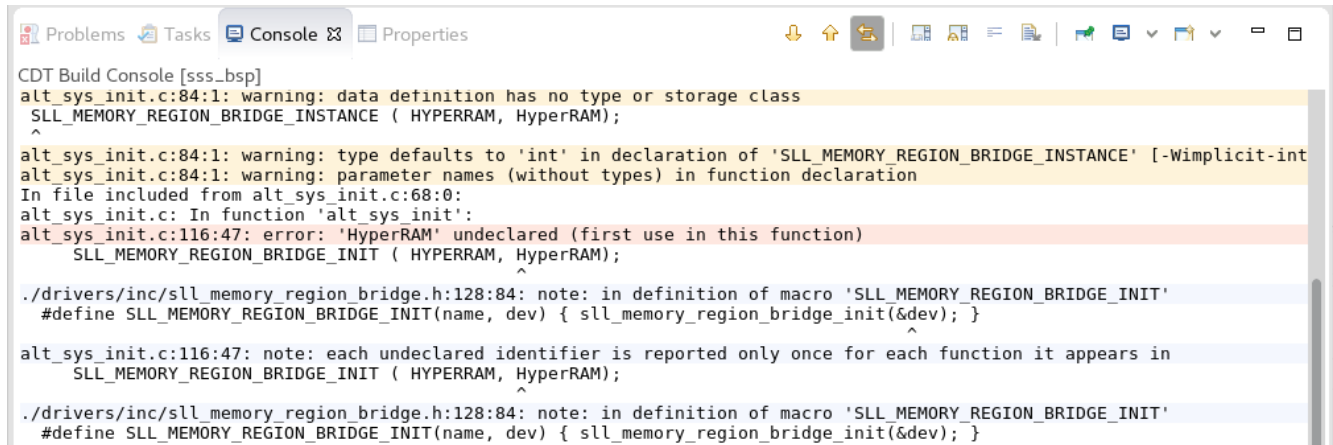
The device drivers are initialized automatically when the parameter `auto_initialize` in file `sll_memory_region_bridge_sw.tcl` is set to `true`

```
# Initialize the driver in alt_sys_init()
```

```
set_sw_property auto_initialize true
```

# S/Labs' Memory Region Bridge Issue for UCOSII

When S/Labs Memory Bridge is used with applications that require the Micrium OS (UCOSII), such as the Simple Socket Server application or Webserver application, an error occurs during bsp generation.

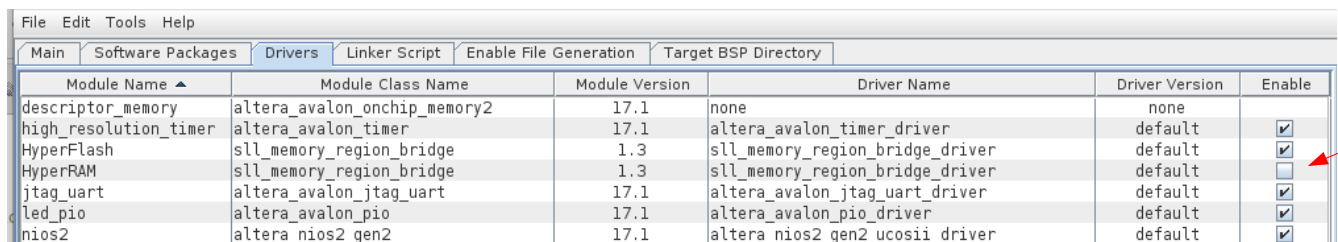


```
CDT Build Console [sss_bsp]
alt_sys_init.c:84:1: warning: data definition has no type or storage class
  SLL_MEMORY_REGION_BRIDGE_INSTANCE ( HYPERRAM, HyperRAM);
^
alt_sys_init.c:84:1: warning: type defaults to 'int' in declaration of 'SLL_MEMORY_REGION_BRIDGE_INSTANCE' [-Wimplicit-int]
alt_sys_init.c:84:1: warning: parameter names (without types) in function declaration
In file included from alt_sys_init.c:68:0:
alt_sys_init.c: In function 'alt_sys_init':
alt_sys_init.c:116:47: error: 'HyperRAM' undeclared (first use in this function)
  SLL_MEMORY_REGION_BRIDGE_INIT ( HYPERRAM, HyperRAM);
                                  ^
./drivers/inc/sll_memory_region_bridge.h:128:84: note: in definition of macro 'SLL_MEMORY_REGION_BRIDGE_INIT'
#define SLL_MEMORY_REGION_BRIDGE_INIT(name, dev) { sll_memory_region_bridge_init(&dev); }
                                                ^
alt_sys_init.c:116:47: note: each undeclared identifier is reported only once for each function it appears in
  SLL_MEMORY_REGION_BRIDGE_INIT ( HYPERRAM, HyperRAM);
                                  ^
./drivers/inc/sll_memory_region_bridge.h:128:84: note: in definition of macro 'SLL_MEMORY_REGION_BRIDGE_INIT'
#define SLL_MEMORY_REGION_BRIDGE_INIT(name, dev) { sll_memory_region_bridge_init(&dev); }
```

For some strange reason (a bug in eclipse?), the HAL drivers are also initialised when S/Labs Memory Region Bridge is NOT configured in Flash mode. This is wrong, since the HAL drivers should **only** be initialised when S/Labs Memory Region Bridge is configured in Flash mode.

The issue does **NOT** occur for other applications that require the standard Altera/Intel HAL OS (like Hello World, Memory Test, etc).

As a temporary solution, the user should disabled the driver for the HyperRAM as suggested below.



Module Name	Module Class Name	Module Version	Driver Name	Driver Version	Enable
descriptor_memory	altera_avalon_onchip_memory2	17.1	none	none	
high_resolution_timer	altera_avalon_timer	17.1	altera_avalon_timer_driver	default	<input checked="" type="checkbox"/>
HyperFlash	sll_memory_region_bridge	1.3	sll_memory_region_bridge_driver	default	<input checked="" type="checkbox"/>
HyperRAM	sll_memory_region_bridge	1.3	sll_memory_region_bridge_driver	default	<input checked="" type="checkbox"/>
jtag_uart	altera_avalon_jtag_uart	17.1	altera_avalon_jtag_uart_driver	default	<input checked="" type="checkbox"/>
led_pio	altera_avalon_pio	17.1	altera_avalon_pio_driver	default	<input checked="" type="checkbox"/>
nios2	altera_nios2_gen2	17.1	altera_nios2_gen2_ucosii_driver	default	<input checked="" type="checkbox"/>