# Short summery of all hardware platforms

This is a short description of the different hardware. The SW drivers etc. is described in the book.

**HW\_CASE\_1A:**

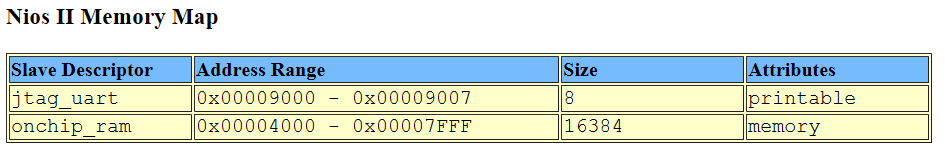


Figure 1: HW\_CASE\_1A, Memory Map

**HW\_CASE\_1C:**

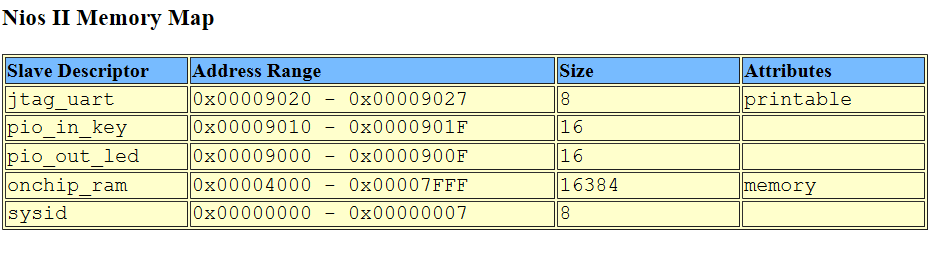


Figure 2: HW\_CASE\_1C, Memory Map

**HW\_CASE\_2:**

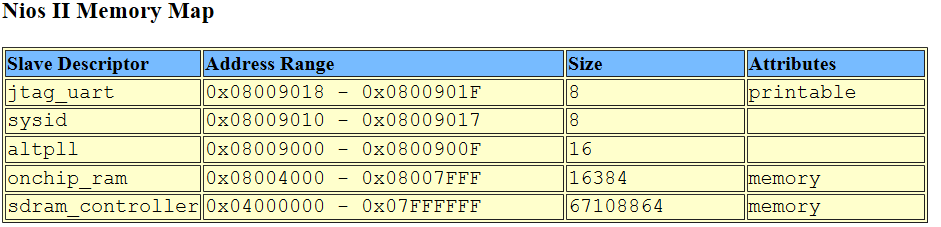


Figure 3: HW\_CASE\_2, Memory Map

Sometimes it is also problem with “system timestamp mismatch”, please ignore this problem. This issue has no design impact.

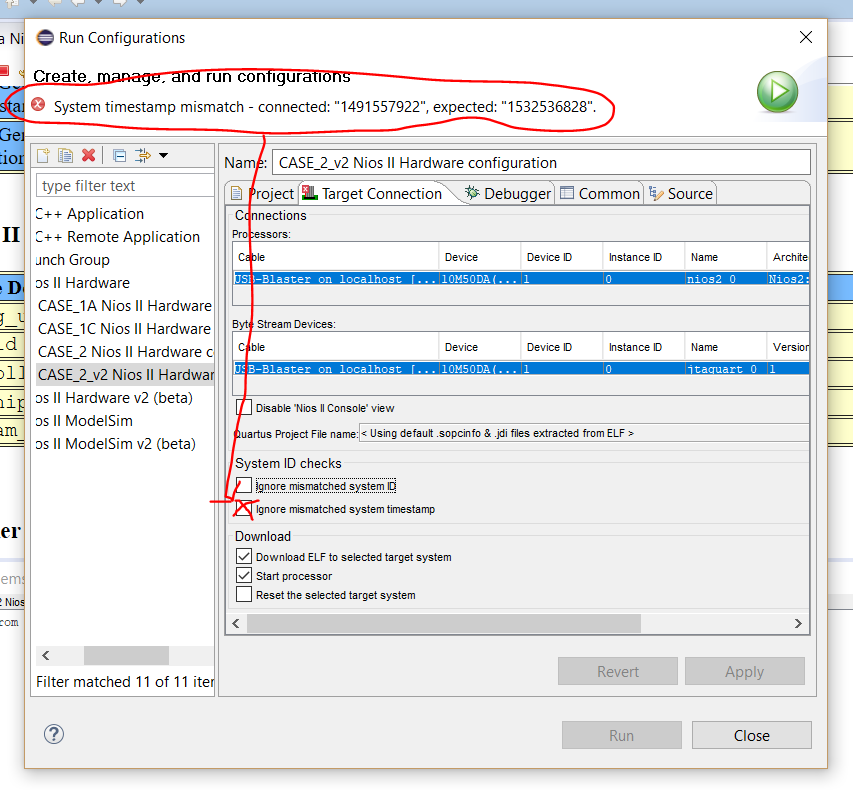


Figure 4: Tick the [Ignore mismatched System timestamp] field.

**HW\_CASE\_3:**

Used for CASE\_3A and CASE\_3B

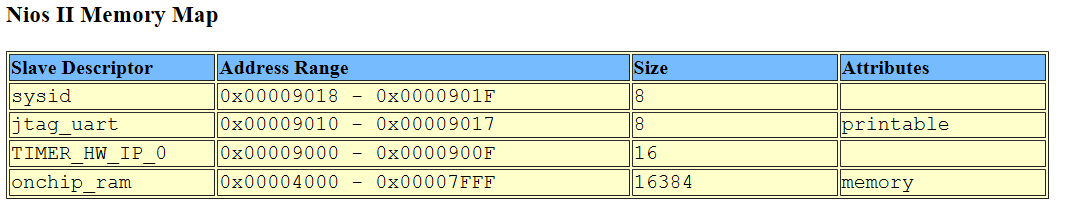


Figure 5: HW\_CASE\_3, Memory Map

**HW\_CASE\_4\_E and CASE\_4\_F:**

The difference between them is the CPU as shown in next figure.

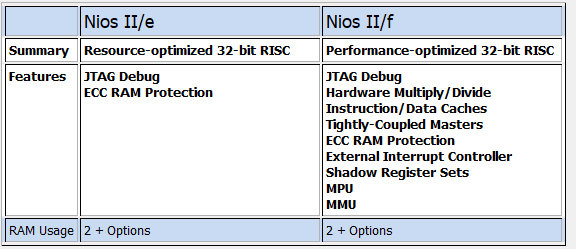


Figure 6: Nios economy (CASE\_4\_E ) and NIOS fast (CASE\_4\_F)

The NIOS economy has no cache.

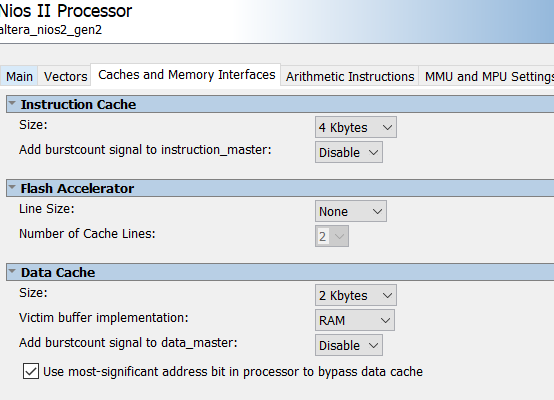


Figure 7: Nios II fast has data and instruction cache

Used for CASE\_4.

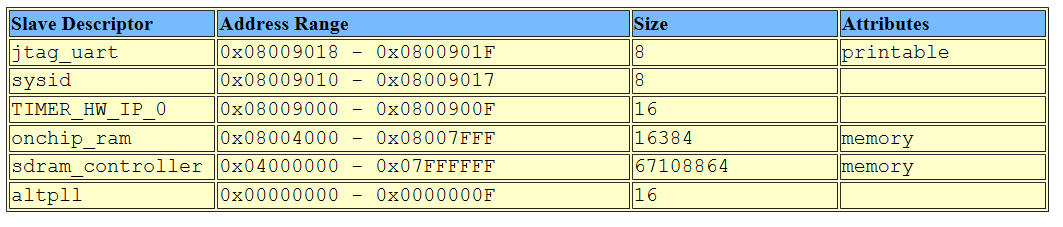


Figure 8: Memory map for HW\_CASE\_4\_E and HW\_CASE\_4\_F

When you run CASE\_4\_F do not close the window “OpenCore Plus Status”. It is not a free IP component, but we can use it if we have a connection to it and it will only run for some time.

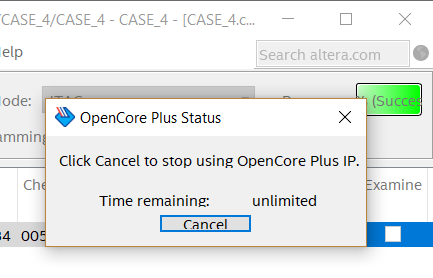


Figure 9: Do not close down the “OpenCore Plus Status”

**CASE\_5A:**

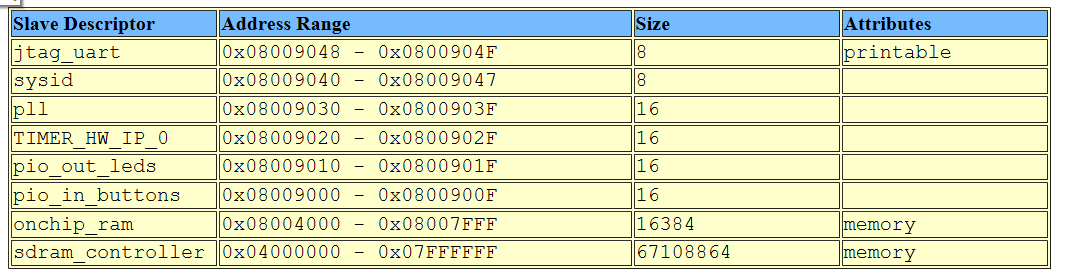


Figure 10: HW\_CASE\_5A, Memory Map

**CASE\_5B:**

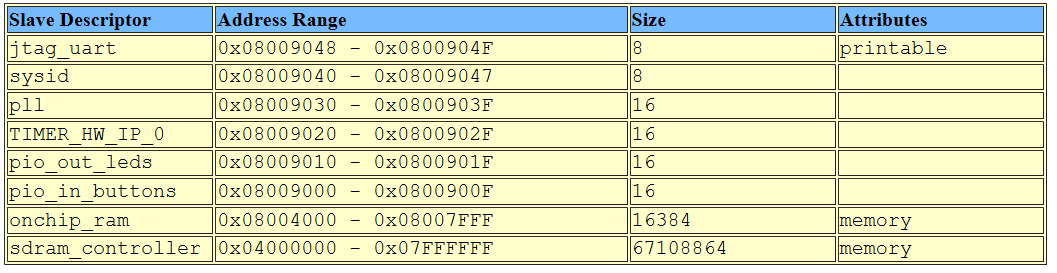


Figure 11: HW\_CASE\_5B, Memory Map

**CASE\_GOLD:**

It is the end design for the practical training in this book, targeted to DE10-Litle evaluation board. It

also includes key components, such as PIO, Analog and SPI interfaces (interface to accelerometer). It also includes one hardware based Real-Time kernel in hardware. The total embedded system fits easy in one small and cheap FPGA device.

The hardware HW\_CASE\_GOLD will be used for the real-time, analog and Bluetooth cases.

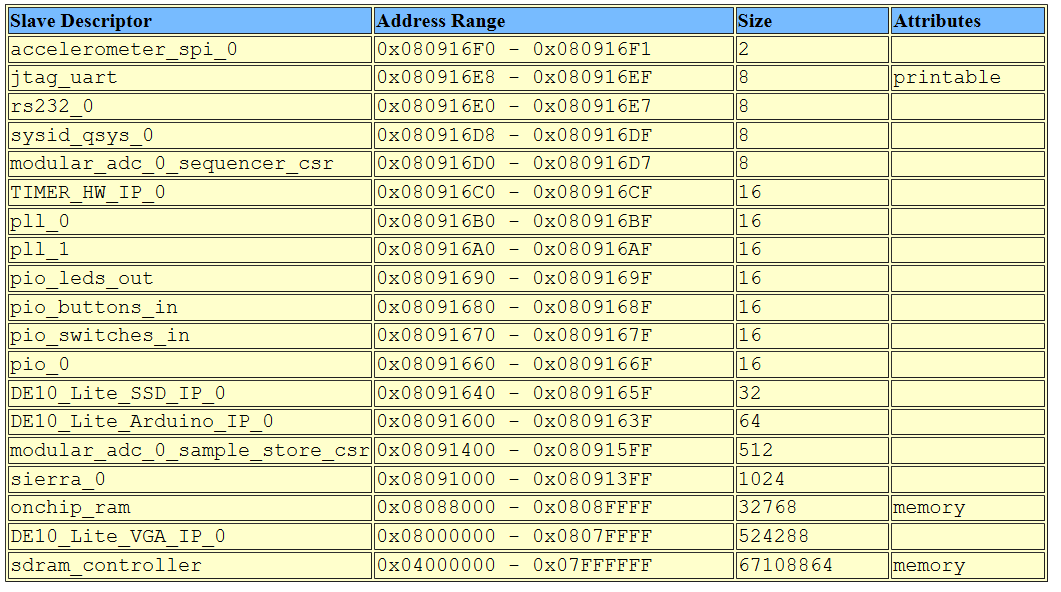


Figure 12: HW\_CASE\_GOLD, Memory Map

**An example of the software projects in Nios II Embedded Design Suite**

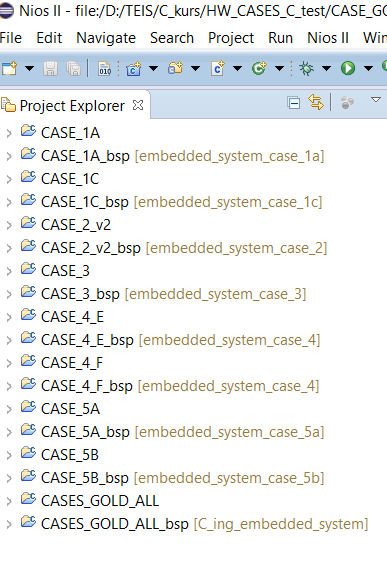


Figure 13: Example of the CASE projects