Exercise 1.2 Summary:

Processor	Hardware Multiplier	Number of Logic Elements	Number of Memory Blocks	Time to perform 100*100 matrix multiply
NIOS II/e	None	2712	44032 bits	Too long to wait…
NIOS II/s	None	3291	79488 bits	14.5 seconds
NIOS II/f	Embedded Multipliers	4260	97664 bits	2.58 seconds

Processors:

- With a barrel shifter, NIOS II/f requires less assembly language instructions to do the calculation, so NIOS II/f needs less time to perform 100*100 matrix multiply
- With a data cache, NIOS II/f performs read and write operations faster as well because reading from and writing to from the SDRAM memory is relatively slow.
- With an embedded multiplier, NIOS II/f perform the multiply operation even faster
- All points mentioned above result in a larger processor, which requires more chips, more power dissipation and less battery life

Timers:

- The “timestamp_timer” (timer_1) is more accurate than the “sys_clk_timer” (timer_0)