



# Read-only Memory

## Exercises Digital Design

### Solution vs. Hints:



While not every response provided herein constitutes a comprehensive solution, some serve as helpful hints intended to guide you toward discovering the solution independently. In certain instances, only a portion of the solution is presented.

## 1 | ROM - Universal logic function

### 1.1 Memory sizes

- a) 2Byte
- b) 1KiB
- c) 64KiB

*rom/logic-function-01*

### 1.2 Realization of a function with multiplexers

- $y_1 = \overline{c \oplus b \oplus a}$
- $y_2$  no solution available

*rom/logic-function-02*



## 2 | ROM - Memory circuit assembly

### 2.1 Memory allocation table

There are 3 memories (2 RAM's and one ROM) With “some” address bits and a multiplexer the right memory is selected.

*rom/rom-circuits-01*



## 3 | ROM - Types of read-only memory

### 3.1 Intel HEX File CRC calculations

- a) **0x1E**
- b) **0xFC**
- c) **0x1A**
- d) **0x8B**
- e) **0xA6**
- f) **0x16**
- g) **0xFF**

*rom/crc-01*



## 4 | ROM - Typical circuits

### 4.1 ROM-Type

1000%

*rom/rom-types-01*