The example below is showing you how to read data from a text file. (The example is from textbook page 300. we corrected some mistakes.)

The file name of the source code is “testfill.vhd”. In this file, we will read data from a text file(“mem1.txt”).

File “mem1.txt”

```
01AC 7
AE 03 B6 91 C7 00 0C
005B 2
01 FC
```

File “testfill.vhd”

```
library ieee, std;
use ieee.std_logic_1164.all;
use ieee.std_logic_arith.all;
use std.textio.all;

entity testfill is
end testfill;

architecture fillmem of testfill is

type RAMtype is array(0 to 2047) of std_logic_vector(7 downto 0);

signal mem: RAMtype :=(others=>(others=>'0'));
--signal testsignal,test1: integer;

procedure fill_memory(signal mem: inout RAMType) is
type HexTable is array(character range<>) of integer;


constant lookup: HexTable('0' to 'F'):=(0,1,2,3,4,5,6,7,8,9,-1,-1,-1,-
1,-1,-1,-1,10,11,12,13,14,15);


file infile: text open read_mode is "mem1.txt";

--reading

variable buff: line;
variable addr_s: string(5 downto 1);
variable data_s: string(3 downto 1);
variable addr1, byte_cnt: integer;
variable data: integer range 255 downto 0;


begin

      while( not endfile(infile))  loop
                  readline(infile, buff);
                  read(buff, addr_s);
```

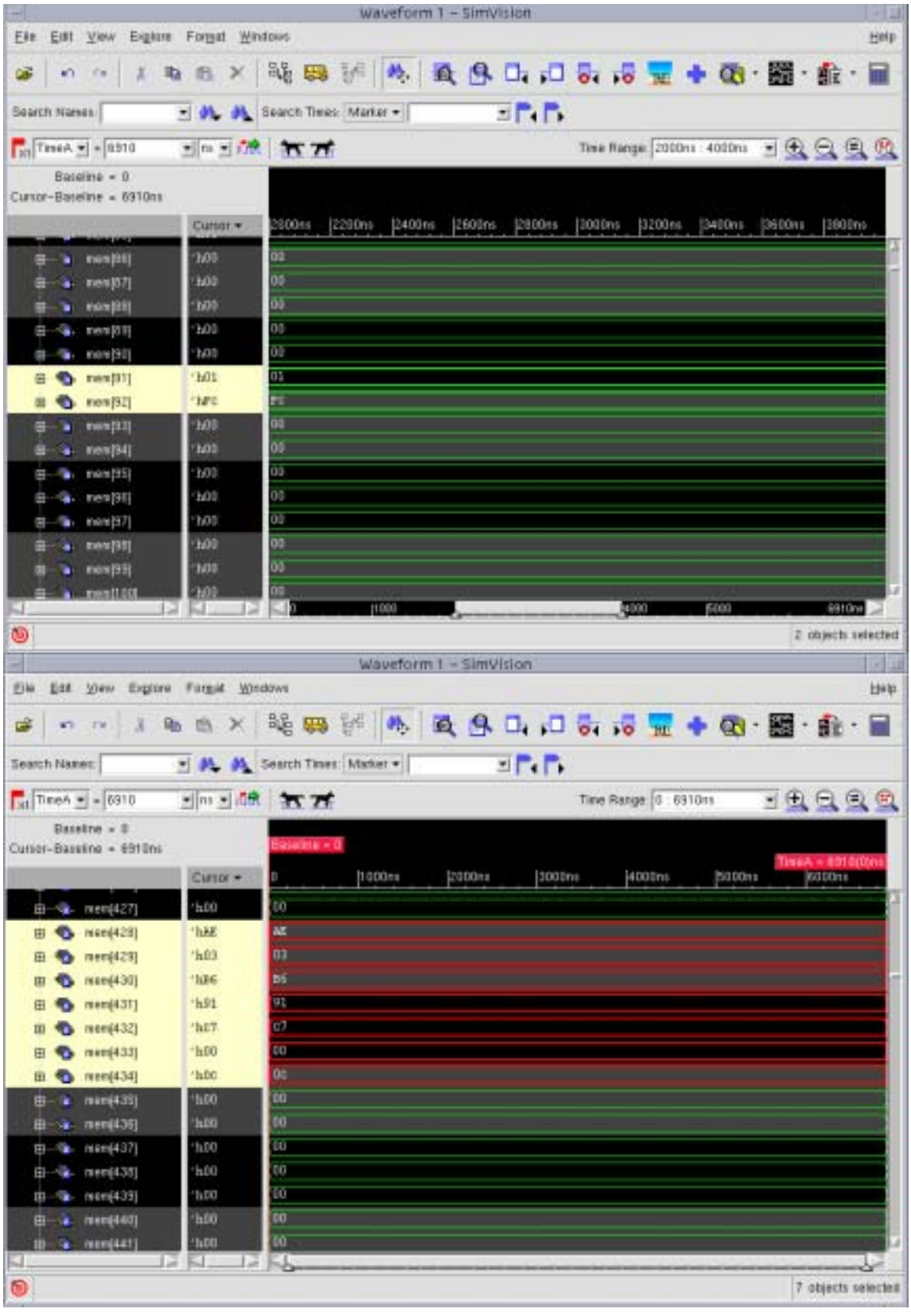
```
                  read(buff, byte_cnt);
                  addr1 := lookup(addr_s(5))*4096 +
lookup(addr_s(4))*256
                        + lookup(addr_s(3))*16 + lookup(addr_s(2));

                  readline(infile, buff);
                  for i in 1 to byte_cnt loop
                              read(buff, data_s);

                              data:=lookup(data_s(3))*16 +
lookup(data_s(2));
                              mem(addr1)<=CONV_STD_LOGIC_VECTOR(data,
8);
                              addr1:=addr1+1;
                  end loop;
end loop;
--testsignal <= byte_cnt;
end fill_memory;

begin
testbench: process
begin
wait for 10 ns;
fill_memory(mem);
end process;
end fillmem;
```

This is the simulation results:


Waveform 1 – SimVision
File Edit View Explore Format Windows Help
Search Names:
Search Times: Marker
TimeA
6910
ns
Time Range: 2000ns : 4000ns
Baseline = 0
Cursor-Baseline = 6910ns
Cursor
2000ns
2200ns
2400ns
2600ns
2800ns
3000ns
3200ns
3400ns
3600ns
3800ns
mem[96]
mem[97]
mem[98]
mem[99]
mem[100]
'h00
'h01
'hFC
1000
5000
6910ns
2 objects selected
Waveform 1 – SimVision
File Edit View Explore Format Windows Help
Search Names:
Search Times: Marker
TimeA
6910
ns
Time Range: 0 : 6910ns
Baseline = 0
Cursor-Baseline = 6910ns
Cursor
0
1000ns
2000ns
3000ns
4000ns
5000ns
6000ns
mem[427]
mem[428]
mem[429]
mem[430]
mem[431]
mem[432]
mem[433]
mem[434]
mem[435]
mem[436]
mem[437]
mem[438]
mem[439]
mem[440]
mem[441]
'h00
'hAE
'h03
'hB6
'h91
'hC7
'h00
'h00
7 objects selected