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## IP Core Generator: ROM

### Features

- Accessible from the Macro Generator Dialog and HDLPlanner™ – Included in IDS for FPGA Devices and System Designer™ for AT94K FPSLIC™ Devices
- Variable Width of Address Inputs
- Variable Width of ROM Data
- ROM Filename Selection
- Variable Enable Input

### Description

The ROM generator is used to create synchronous read-only data memories. The data is generated by reading a user-supplied data file and then using the look-up tables within each core cell to store the data.

### Parameters

Parameter	Value	Explanation
Address Width	Integer > 0	Width of address inputs – the number of ROM words created is determined by this parameter, e.g. 2adwidth
Width	Integer > 0	Width of each ROM data word
ROM File	File name	Name of the file with data to be stored in the ROM
Enable Input	Boolean	Provides an enable input (active high)

### Pins

Type	Name	Option	Explanation
In	ADDRESS[AD - Width - 1:0]	No	Input address for ROM
In	OE	Yes	Memory enable 1 = output data; 0 = tri-state
Out	Q[Width - 1:0]	No	ROM data output



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**Programmable  
SLI  
AT40K  
AT40KAL  
AT94K**

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**Application  
Note**

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Rev. 2445A–12/01



The ROM generator reads as input a file specified by the file option (default is rom.hex) which should be located in the project directory. The format of the file is basically a header line with either hex, dec, oct or bin to indicate that numbers in the file are in hexadecimal, decimal, octal or binary format, respectively. Each subsequent line should be of the form Address Value. For example:

**rom.hex<sup>(1)</sup>**

```

dec
0 0
1 2
2 4
3 8
4 7
5 5
6 3
7 3
8 3
9 3
10 3
11 3
12 4
13 5
14 6
15 7

```

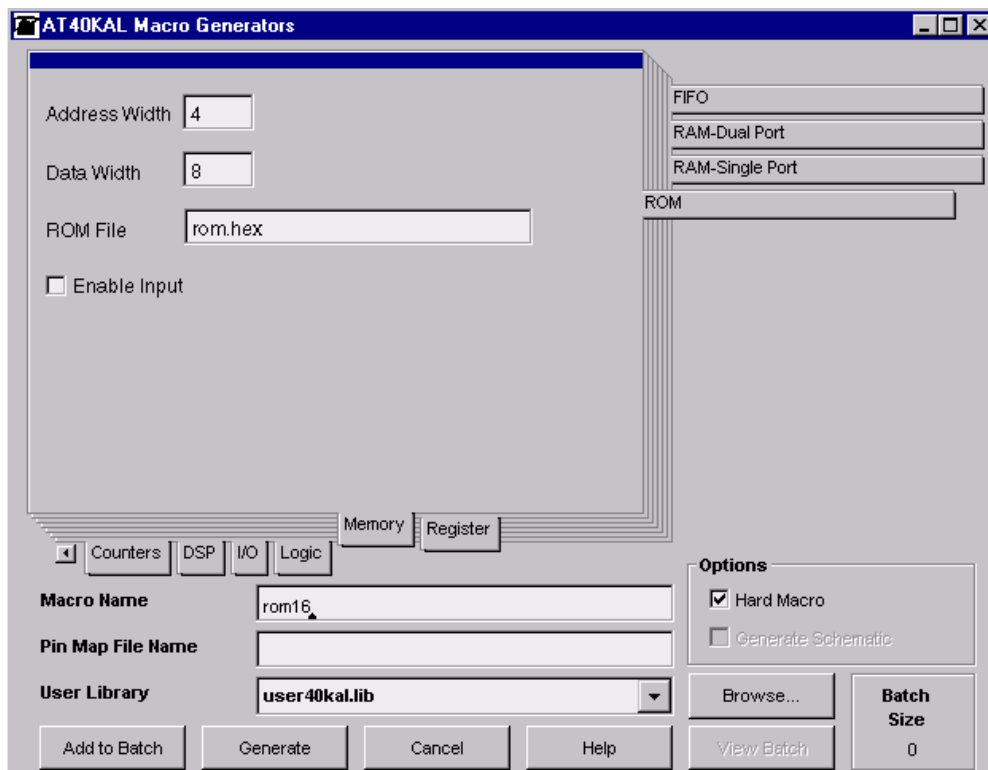
Note: 1. The left column refers to the address line, and the right column refers to the data line.

**Statistics**

Device	Name	Speed (MHz)	Delay (ns)	Cells	Size (x * y)
AT40K	rom16	339.0	3.0	8	8 x 1
AT40K	rom8	339.0	3.0	4	4 x 1
AT94K/ AT40KAL	rom16	492.6	2.0	8	8 x 1
AT94K/ AT40KAL	rom8	492.6	2.0	4	4 x 1

Figure 1 shows an example of the rom16 macro options.

Figure 1. ROM Generator





## Atmel Headquarters

*Corporate Headquarters*  
2325 Orchard Parkway  
San Jose, CA 95131  
TEL (408) 441-0311  
FAX (408) 487-2600

### *Europe*

Atmel SarL  
Route des Arsenaux 41  
Casa Postale 80  
CH-1705 Fribourg  
Switzerland  
TEL (41) 26-426-5555  
FAX (41) 26-426-5500

### *Asia*

Atmel Asia, Ltd.  
Room 1219  
Chinachem Golden Plaza  
77 Mody Road Tsimhatsui  
East Kowloon  
Hong Kong  
TEL (852) 2721-9778  
FAX (852) 2722-1369

### *Japan*

Atmel Japan K.K.  
9F, Tonetsu Shinkawa Bldg.  
1-24-8 Shinkawa  
Chuo-ku, Tokyo 104-0033  
Japan  
TEL (81) 3-3523-3551  
FAX (81) 3-3523-7581

## Atmel Product Operations

### *Atmel Colorado Springs*

1150 E. Cheyenne Mtn. Blvd.  
Colorado Springs, CO 80906  
TEL (719) 576-3300  
FAX (719) 540-1759

### *Atmel Grenoble*

Avenue de Rochepleine  
BP 123  
38521 Saint-Egreve Cedex, France  
TEL (33) 4-7658-3000  
FAX (33) 4-7658-3480

### *Atmel Heilbronn*

Theresienstrasse 2  
POB 3535  
D-74025 Heilbronn, Germany  
TEL (49) 71 31 67 25 94  
FAX (49) 71 31 67 24 23

### *Atmel Nantes*

La Chantrerie  
BP 70602  
44306 Nantes Cedex 3, France  
TEL (33) 0 2 40 18 18 18  
FAX (33) 0 2 40 18 19 60

### *Atmel Rousset*

Zone Industrielle  
13106 Rousset Cedex, France  
TEL (33) 4-4253-6000  
FAX (33) 4-4253-6001

### *Atmel Smart Card ICs*

Scottish Enterprise Technology Park  
East Kilbride, Scotland G75 0QR  
TEL (44) 1355-357-000  
FAX (44) 1355-242-743

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*Atmel Programmable SLI Hotline*  
(408) 436-4119

*Atmel Programmable SLI e-mail*  
fpga@atmel.com – fpslic@atmel.com

### *FAQ*

Available on web site

*e-mail*  
literature@atmel.com

*Web Site*  
<http://www.atmel.com>

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