

# SYNCHRONOUS TWO-PORT REGISTER FILE COMPILER

Version 1.0 | September 2006

## Key Features

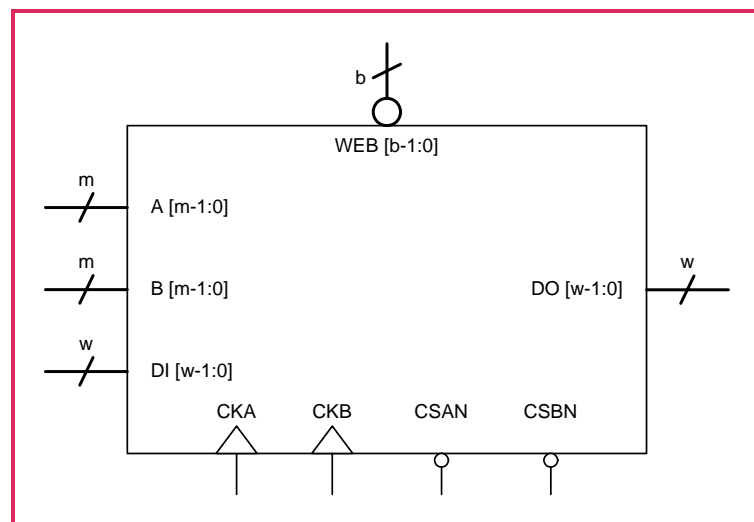
- Synchronous read and write operations
- Fully customized layout density
- Available in  $1.2\text{ V} \pm 10\%$
- Automatic power down to eliminate the DC current
- Clocked address inputs and CSA(B)N to RAM at the CKA(B) rising edge
- Clocked WEB input pins to RAM at the CKB rising edge
- Clocked DI input pins to RAM at the CKB rising edge
- Byte write or word write operations available
- Verilog/VHDL timing simulation model generators
- SPICE netlist generator
- GDSII layout database
- Memaker preview UI
- Column mux options for the best aspect ratio

## General Description

The FSR0H\_D\_SZ is the synchronous two-port register file compiler. It was created according to UMC 0.11  $\mu\text{m}$  logic HS (FSG) process design rules and can be incorporated with Faraday 0.11  $\mu\text{m}$  standard cells. This compiler allows different combinations of words, bits, and aspect ratios to generate the most desirable configuration.

Given the desired size and timing constraints, the FSR0H\_D\_SZ compiler is capable of providing suitable synchronous RAM layout instances in minutes. It automatically generates the data sheets, Verilog/VHDL behavioral simulation models, SCS or ViewLogic symbols, Place & Route models, and test patterns to be used in the ASIC designs. The length of the duty cycle can be neglected as long as the setup and hold times and the minimum high and low pulse widths are satisfied. This allows a more flexible clock falling edge in each operation. Both word write and byte write operations are supported.

## Logic Symbol



### Quick Reference

Bit cell	UMC.L110E 8TSRAM3.77HSSP
Read cycle time	450 MHz (max.) under the worse case condition of 128 x 144
Address port	1 read port and 1 write port
Variable capacity	72 kB (max.)
Aspect ratios (column mux)	2, 4, 8
Applications	Configurable SRAM modules for the embedded designs using UMC 0.11 $\mu$ m logic EHS (FSG) process



#### **HEADQUARTERS**

Hsinchu, Taiwan,  
Tel: 886-3-578-7888  
Fax: 886-3-578-7889  
twsales@faraday-tech.com

#### **USA OFFICE**

Sunnyvale, USA  
Tel: 1-408-522-8888  
Fax: 1-408-522-8889  
ussales@faraday-tech.com

#### **EUROPE OFFICE**

Hoofddorp, Netherlands  
Tel: 31-2356-20496  
Fax: 31-2356-36297  
eusales@faraday-tech.com

#### **JAPAN OFFICE**

Tokyo, Japan  
Tel: 81-3-5214-0070  
Fax: 81-3-5214-0076  
jpsales@faraday-tech.com

#### **CHINA OFFICE**

Shanghai, P. R. China  
Tel: 86-21-6406-7523  
Fax: 86-21-6406-5327  
cnsales@faraday-tech.com