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WELCOME TO ATMEL-WinCUPL V5.216

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This README file contains important information about WinCUPL. For the latest information about WinCUPL read this entire file.

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1.   HOW TO GET ASSISTANCE

If you have any problems, please read this file. If you need need assistance, please contact Atmel at:

PLD Hotline at (408) 436-4333
E-mail: pld@atmel.com.
WEB Homepage: http://www.atmel.com
BBS: (408) 436-4309

When reporting bugs please be detailed as possible, send your PLD source file and indicate the version of Atmel-WINCUPL with the problem.

2.   SYSTEM REQUIREMENTS

- Pentium based PC.
- 32 MB memory.
- 100 MB hard disk space.
- Windows **95/98/NT** 4.0
- CD ROM Drive.

3.   INSTALLATION INSTRUCTIONS

1. Insert the CDROM in your CD drive.
2. For Win95, Win98, Win NT4.x, choose START, RUN.
3. Type D:\setup (if your CDROM is not drive D, type the appropriate letter instead)
4. Choose OK
5. Follow the instructions on the screen.
6. Versions 5.2x and higher have no limitation on the number of compiles. You will need a Serial Number [can be found on the CDROM] before you can run this application.

4.   WEB INSTALLATION

If you are installing version 5.x and higher from the Atmel website:

1. Download SETUPEX.EXE from the Atmel-Website. To directly access the webpage that has the listing, you can type the following address in your Browser's address window. ([http://www.atmel.com/atmel/products/prod147.htm)](http://www.atmel.com/atmel/products/prod147.htm).
2. Atmel-WinCUPL, version 5.x and higher are suitable for WIN95, WIN98, and WIN-NT4.x platforms. You will need a Serial Number before you can run this application.
3. Register on Atmel's website to obtain the Serial number that will enable you to work with WinCUPL. Install this version of WinCUPL on the local drive of your PC. Before installing a newer version of WinCUPL, we recommend that you uninstall the older version of WinCUPL. To uninstall, click on the UNINSTALL option from the Start Programs menu. Verify that there are no files in the directory in which the previous version of WinCUPL was installed.

4. IMPORTANT INFORMATION

WINSIM has been updated to version **5.128.**
The **CUPL_BUG.TXT** document now lists outstanding (open) bugs. Bugs that are fixed are listed in the **CUPL_FIX.TXT** document.

DEVICE SPECIFICS:

A. **ATF16V8C/CZ** device.

If you want to enable the pin-controlled power down feature on the Atmel ATF16V8C select the "**g16v8cp**" device type.
Note: If you select this device type, you will need to select the ATF16V8C device with a "EXT" suffix on your programmer device menu listing.
 If you want to disable pin-controlled power down feature select "g16v8a" device type. If you are generating a simulation file for the g16v8cp device type you must specify pin 4 to be zero. If you do not, WINCUPL will automatically overwrite it to a zero. This is required for functional verification of the ATF16V8C/CZ on the programmer when the pin-controlled power down mode is enabled.

B. **ATF22V10C/CZ** device.

If you want to enable the pin-controlled power down feature select either the "g22v10cp" or "g22v10cplcc" device types for DIP or PLCC packages respectively.

Note: If you select this device type, you will need to select the ATF22V10C device with a "EXT" suffix" on your programmer device menu listing. If you want to disable the pin-controlled power down feature select either the "g22v10" or "g22v10lcc" device types.
 Note: If you select this device type, you may need to select the ATF22V10C device with a "U" or "UES" suffix on your programmer device menu listing.

If you are generating a simulation file for the g22v10cp or g22v10cplcc device types you must specify pin 4 for DIP or pin 5 for PLCC to be zero. If you do not, WINCUPL will automatically overwrite it to a zero. This is required for functional verification of the ATF22V10C/CZ on the programmer when the pin-controlled power down mode is enabled. Refer to CUPL_BUG.TXT for bug information.

C. **ATF750C/CL** device:

If you select the **ATF750C/CL** device type, this will generate a Jedec file that will be consistent with the older ATV750/ATV750B devices. The Jedec file will however have 64 extra fuses for the User Electronic Signature (UES).

Select the **ATF750C/CL (PPK)** device type if you want to enable the Pin Keeper Circuits. This also contains 64 UES fuses

Select the **ATF750CEXT** device type if you want to use Pin 4 (Pin 5 for PLCC) to power down the device.

Select the **ATF750CEXT (PPK)** device type type if you want to use Pin 4 (Pin 5 for PLCC) to power down the device and also enable the Pin keeper circuits.

Note:
If the device type for ATF750CEXT or ATF750CEXT (PPK) is selected Pin 4 (Pin 5 for PLCC) cannot be used as a logic input. If the device type for ATF750CEXT or ATF750CEXT(PPK) is selected, Pin 4 (Pin 5 for PLCC) must be set to "0's" for all vectors in the JEDEC file by the compiler simulators unless the state of this pin is defined by the user in the simulation file. Setting the Power-Down pin (Pin 4 for DIP and Pin 5 for PLCC) to "0's" in the vectors will ensure that the device will stay in the active mode during the functional test of the device.

D. **ATF1500A/AL** device.

This device allows the Bus-friendly Pin Keeper circuits to be enabled or disabled. The pin keeper circuit will weakly hold all outputs to their previously defined states when the outputs are disabled. The pin-keeper circuits are easily overdriven when the ouputs are enabled. When this feature is disabled all output will float when tri-stated.

Note: Pin Keeper circuits are also available on the ATF1500 devices which have been discontinued, but they cannot be disabled.

You can enable or disable the pin-keeper circuits by using the CUPL property statement.
To disable this feature:
In your PLD source file add the line:
PROPERTY ATMEL { pin_keep OFF };
Recompile your design for either the F1500A or F1500AT device types. The fitter will automatically create a JEDEC file which when programming into the ATF1500A device will disable the pin-keeper circuits.
To Enable this feature:
PROPERTY ATMEL { pin_keep ON }; /* This is the default condition, so this statement can be omitted */

E. **ATF2500C/CQ/CQL** device

If you select the **ATF2500C/CL** device type, this will generate a Jedec file that will be consistent with the older ATV2500/ATV2500B devices. The Jedec file will however have 64 extra fuses for the User Electronic Signature (UES). The total number of Jedec fuses will equal 71816.
The Pin Keeper feature is disabled.

F. **ATF20V8C/CQ/CQZ** device.

If you want to enable the pin-controlled power down feature select either the "g20v8cp" or "g20v8cplcc" device types for DIP or PLCC packages respectively. The Jedec fuse file generated will have one extra jedec fuse. The Third party programmer will also have a Unique device type to identify the device with power down (PD) feature.

6. Atmel ATF1500A/ATF1508AS/ATF1504AS/ATF1502AS Fitter Support

This version of Atmel-CUPL includes the Atmel ATF1500 device fitter (V2.41) WinCupl will automatically run this fitter when compiling ATF1500A designs. A fitter macro file FIT1500.M has also been included in this version. This macro file allows you to specify commonly used fitter properties in your PLD source file.

More information on the Atmel ATF1500A device fitter, it's properties and macrosupport is provided in the ATF1500A CPLD Fitter Manual included in the Atmel.

Note: Property statements are used to control the following **ATF1500A** features:
    - preassign = [TRY | keep | ignore]
    - optimize = [ON | off]
    - soft_buffer [OFF | on | = node1, node2...]
    - xor_synthesis [OFF | on | = pin1, pin2...]
    - cascade_logic [ON | off | = pin1, pin2...]
    - foldback_logic [ON | off | = node1, pin2...]
    - expander [= node1, node2...] (inverted)
    - output_fast [on | OFF | = pin1, pin2, ..]
    - dedicated_input [ON | off | = pin1, pin2...]
    - security = [OFF | on]
    - pin_keep = [ON | off]
    - sleep [OFF | on | = pin_name] (power_down mode)
    - jedec_file = file_name
    - vector_file = file_name
    - verilog_file = file_name
    - tPD = [15 | 7 | 10 | 12 | 25]
    - time_file = file_name
   The option in uppercase is the default condition.

ATF1508AS Fitter Support :
This version of Atmel-WinCUPL includes the Atmel ATF1508 device fitter(Beta V1.8.3.9). WinCUPL will automatically run this fitter when compiling ATF1508 designs. This fitter version is a Beta version and future updates will occur. The latest version is always available on the Atmel website in a file FIT5_0.zip

Note: Property statement are used to control all ATF1508 fitter strategies shown below.
  -strategy preassign = [TRY | keep | ignore]
  -strategy optimize = [ON | off]
  -strategy soft_buffer [OFF | on | = node1, node2...]
  -strategy xor_synthesis [OFF | on | = pin1, pin2...]
  -strategy cascade_logic [ON | off | = pin1, pin2...]
  -strategy foldback_logic [ON | off | = node1, pin2...]
  -strategy expander [= node1, node2...] (inverted)
  -strategy output_fast [on | OFF | = pin1, pin2, ..]
  -strategy dedicated_input [ON | off | = pin1, pin2...]
  -strategy security = [OFF | on]
  -strategy pin_keep = [ON | off]
  -strategy jedec_file = file_name
  -strategy pd1 [OFF | on | = pin_name] (power down 1)
  -strategy pd2 [OFF | on | = pin_name] (power down 2)
  -strategy power_reset = [OFF | on]
  -strategy MC_power [OFF | on | = pin1, pin2...]
  -strategy open_collector [OFF | on | = pin1, pin2...]
  -strategy fast_inlatch [ON | off | = pin1, pin2...]
  -strategy JTAG = [OFF | on]

-strategy TDI_pullup = [OFF | on]
    -strategy TMS_pullup = [OFF | on]

ATF1504AS Fitter Support :
This version of Atmel-WinCUPL includes the Atmel ATF1504AS device fitter (Beta V1.8.3.9). WinCUPL
will automatically run this fitter when compiling ATF1504AS designs.

Note: Property statements are used to control all ATF1504AS fitter strategies shown below.
    -strategy preassign = [TRY | keep | ignore]
    -strategy JTAG = [OFF | on]

ATF1502AS Fitter Support :
This version of Atmel-WinCUPL includes the Atmel ATF1502AS device fitter (Beta V1.8.3.9). WinCUPL
will automatically run this fitter when compiling ATF1502AS designs.

Note: Property statements are used to control all ATF1504AS fitter strategies shown below.
    -strategy preassign = [TRY | keep | ignore]
    -strategy JTAG = [OFF | on]

7. Table of ATMEL EPLDs and Applicable Device mnemonics

Atmel EPLD	Device Mnemonic
ATF16V8B/BQ/BQL - ALL	g16v8, **g16v8a**[*], g16v8s, g16v8as g16v8ma, g16v8ms
ATF16V8C/CZ, ATF16LV8C - ALL	g16v8, **g16v8a**[*], g16v8s, g16v8as g16v8ma, g16v8ms
ATF16V8C-PD mode - ALL	**g16v8cp**[*], g16v8cpas, g16v8cpma, g16v8cpms
ATF20V8B, ATF20V8C - DIP	g20v8, **g20v8a**[*], g20v8as, g20v8ma, g20v8ms
ATF20V8B, ATF20V8C - PLCC	g20v8lcc, g20v8slcc, **g20v8alcc**[*], g20v8aslcc, g20v8malcc, g20v8mslcc
ATF20V8C-PD mode - DIP	**g20v8cp**[*], g20v8cpas, g20v8cpma, g20v8cpms
ATF20V8C-PD mode - PLCC	**g20v8cplcc**[*], g20v8cpaslcc, g20v8cpmalcc, g20v8cpmslcc
ATF22V10B/BQ/BQL - DIP	**g22v10**[*], p22v10[**]
ATF22V10B/BQ/BQL - PLCC	**g22v10lcc**[*], p22v10lcc[**]
ATF22V10C/CZ - DIP	g22v10
ATF22V10C/CZ - PLCC	g22v10lcc
ATF22V10C-PD mode - DIP	g22v10cp
ATF22V10C-PD mode - PLCC	g22v10cplcc
ATV750/L - DIP	v750
ATV750/L - PLCC	v750lcc
ATV750B/BL - DIP	v750b
ATV750B/BL - PLCC	v750blcc
ATF750C/CL, ATF750LVC/LVCL - DIP	v750c
ATF750C/CL, ATF750LVC/LVCL - PLCC	v750clcc
ATF750C/LVC-PD mode - DIP	v750cext
ATF750C/LVC-PD mode - PLCC	v750cextlcc
ATF750C/LVC - PD mode, PPK enabled - DIP	v750cextppk
ATF750C/LVC - PD mode, PPK enabled - PLCC	v750cextppklcc
ATF750C/LVC - PPK enabled - DIP	v750cppk

ATF750C/LVC - PPK enabled - PLCC	v750cppklcc
ATV2500H/L -DIP	v2500
ATV2500H/L - PLCC	v2500lcc
ATV2500B/BQ/BQL - DIP	v2500b
ATV2500B/BQ/BQL - PLCC	v2500blcc
ATF2500C/CL -DIP	v2500c
ATF2500C/CL - PLCC	v2500clcc
ATF1500/L - PLCC	f1500
ATF1500/L -TQFP	f1500t
ATF1500A/AL/ABV - PLCC	f1500a
ATF1500A/AL/ABV -TQFP	f1500at
ATF1502AS/ASL - PLCC44	f1502plcc44
ATF1502AS/ASL - ISP PLCC44	f1502ispplcc44
ATF1502AS/ASL -TQFP44	f1502tqfp44
ATF1502AS/ASL -ISP TQFP44	f1502isptqfp44
ATF1504AS/ASL - PLCC44	f1504plcc44
ATF1504AS/ASL - ISP PLCC44	f1504ispplcc44
ATF1504AS/ASL -TQFP44	f1504tqfp44
ATF1504AS/ASL -ISP TQFP44	f1504isptqfp44
ATF1504AS/ASL - PLCC68	f1504plcc68
ATF1504AS/ASL - ISP PLCC68	f1504ispplcc68
ATF1504AS/ASL - PLCC84	f1504plcc84
ATF1504AS/ASL - ISP PLCC84	f1504plcc84
ATF1504AS/ASL - TQFP100	f1504tqfp100
ATF1504AS/ASL - ISP TQFP100	f1504isptqfp100
ATF1504AS/ASL - PQFP100	f1504pqfp100

ATF1504AS/ASL - ISP PQFP100	f1504isppqfp100
ATF1508AS/ASL - PLCC84	f1508plcc84
ATF1508AS/ASL -ISP PLCC84	f1508ispplcc84
ATF1508AS/ASL -PQFP100	f1508qfp100
ATF1508AS/ASL - ISP PQFP100	f1508ispqfp100
ATF1508AS/ASL -TQFP100	f1508tqfp100
ATF1508AS/ASL - ISP TQFP100	f1508isptqfp100
ATF1508AS/ASL -PQFP160	f1508pqfp160
ATF1508AS/ASL-ISP PQFP160	f1508isppqfp160

PD mode: Pin Controlled Power down feature allows user to power down the part.
PPK: Pin Keeper Circuits keep the Pins in a known state [either a Logic HI or a Logic LO]
∗: This is the preferred device mnemonic.
∗∗: Used with old AT22V10/L devices.