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ADDENDUM

REALFAST SIMULATION ACCELERATOR

INTRODUCTION

The Realfast Simulation Accelerator dramatically increases the simulation speed of the SCALDsystem Logic Simulator. Since the Realfast Accelerator is connected directly to a SCALDsystem, logic simulations using the Realfast Accelerator can be performed only at the local SCALDsystem. Also, since the Realfast Accelerator is not a shared resource, only one Realfast simulation can be performed at a time.

USING REALFAST

Simulation using the Realfast Accelerator is identical to normal simulation with the Logic Simulator except that the speed of simulation is significantly increased. To use the Realfast Simulation Accelerator for a simulation session, the following directive must be included in the Logic Simulator's Directives File ("simulate.cmd"):

```
USE_REALFAST ON;
```

Similarly, to disable the Realfast Accelerator for a subsequent simulation using the same directives file, the USE_REALFAST ON directive either must be replaced with the directive

```
USE_REALFAST OFF;
```

or must be deleted from the file (i.e., the Realfast Accelerator must be explicitly enabled).

THE SYNONYMS FILE

A new directive has been added to the 7.4.1 release of the Logic Simulator to determine if the Compiler's synonyms file (cmpsyn.dat) is to be read. When the Simulator is not required to read the synonyms file, the Realfast loader capacity is increased and the time required to load a design is decreased. The forms of this directive are:

```
USE_SYNONYM OFF;  
USE_SYNONYM ON;
```

To disable the reading of the synonyms file, the directive `USE_SYNONYM OFF`; must be included in the Simulator's directive file (the synonyms file is read by default). Note that when the synonyms file is not read, all signals OPENed or DEPOSITed must be referenced by their base names. MAY 16 1966

The base name of a signal can be determined by examining the synonyms file. The general format of this file is:

```
FILE_TYPE=SYNONYMS;
DRAWING='<drawing_name>'.SIM.1.1
'<synonym_name>='<base_name>'
.
.
.
'<synonym_name>='<base_name>'
END.
```

Within the file, signal synonyms appear on the left of the equal sign and base names appear on the right (for more information on signal synonyms, refer to section 4-12, "Signal Synonyms," in Chapter 4 of the SCALDsystem Reference Manual).

SOFTWARE LIMITATIONS

The current release of the Realfast Simulation Accelerator software imposes the following restrictions on the use of the SCALDsystem Logic Simulator. Subsequent releases of the Realchip Accelerator software will support full Logic Simulator functionality.

- o Unsupported Primitives -- circuits modeled with the ALU, RES, or PASS TRANSISTOR primitives cannot be simulated with Realfast.
- o Logic Patching -- the Logic Simulator's logic patching facility is not supported (i.e., designs must be recompiled following any change).
- o Breakpoints -- the Logic Simulator's breakpoint facility is not supported.
- o Opening Memories -- the OPENMEMORY command cannot be used while in the waveforms mode.
- o Delay Times -- Realchip and User-Coded Primitive (UCP) models cannot have delay times in excess of 4095 nanoseconds.

- o Capacity -- the Realfast hardware, when fully configured, can simulate designs of up to one million primitives; the current implementation of the Realfast loader software limits the simulation capacity to approximately 46,000 standard primitives (144,000 2-input gate equivalents).

If any of the above restrictions is violated, it is detected by the simulator and the simulation run is aborted.

SOFTWARE CHANGES

When using User-Coded Primitives with Realfast, the file reference in the PASCAL procedure must be modified to define the object files required by Realfast. In the section "The PASCAL Code for S-32 Hosts" in the Logic Simulator Chapter of the reference manual, the PASCAL comment in the third line ("(*\$U simproper.obj*)") and the file reference in the fourth line ("uses sim_proper;") must be replaced with the following line:

```
uses (*$U userglob.obj*) userglob;
```