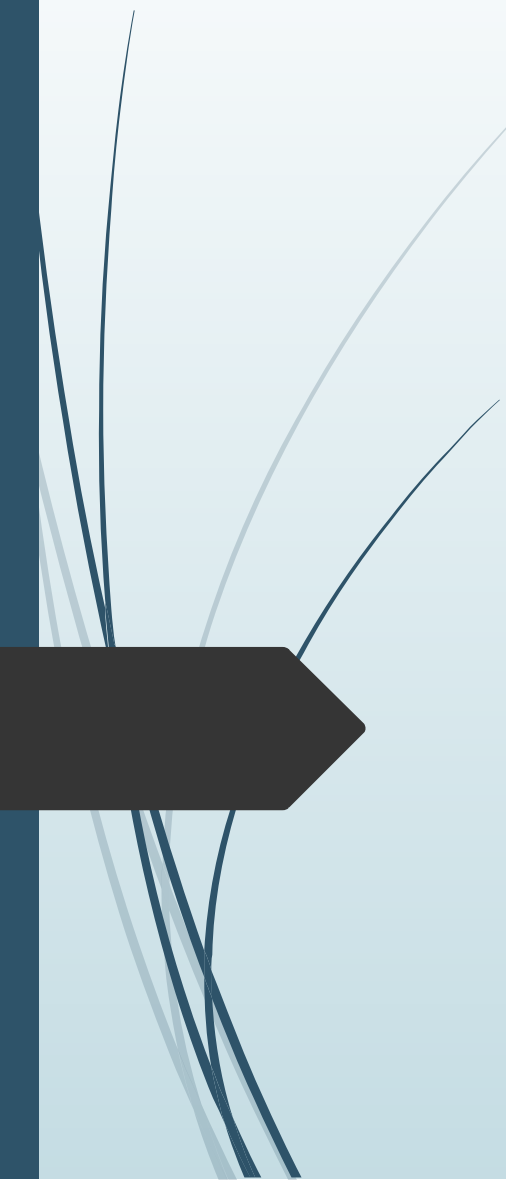

System tasks and functions

Categories of system tasks and functions

- Display Tasks
- File I/O Tasks
- Simulation Control
- Math Functions
- Probabilistic Functions

Display System Tasks

- Supported in Analog Context:

  $display, $strobe, $monitor, $debug

  $debug only support for analog context

  $monitoron and $monitoroff supports digital context

- Escape Sequences:

  \n (newline), \t (tab), \% (percent sign)

- Format Specifiers:

  %d (decimal), %h (hex), %e (exponential), %r (engineering notation)

File I/O System Tasks

- Opening/Closing Files:

  $fopen(filename, type)

  $fclose(fd)

- File Operations:

  $fdisplay, $fwrite, $fscanf, $fseek

- $fread, $freadmem does not support analog

Simulation Control Tasks

- Tasks:

  $finish – Terminates simulation.

  $stop – Pauses simulation.

  $fatal – Terminates with error.

  $warning/$error – Issues warnings/errors.

- $fatal, $warning, $error, $info does not support digital context but supports analog context

Math System Functions

- Functions:

  $sin(x), $cos(x), $log(x), $pow(x,y)

  $clog2(x) – Ceiling of log base 2.

- All are Supported in Analog Context

Probabilistic Distribution Functions

- Random Number Generation:

  $random(seed) – Digital context.

  $arandom(seed, "global"/"instance") – Analog context.

- Distribution Functions:

  $dist_uniform, $dist_normal, $dist_exponential

  $rdist_uniform, $rdist_normal.

Analog Kernel Control Tasks

- Tasks:

$discontinuity(n) – Announces derivative discontinuity.

$bound_step(max_step) – Limits time step.

- Function:

$limit() – Improves solver convergence.