

# Smart Systems Integration and Simulation



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Editors

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 Springer

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# Acronyms/Abbreviations

1/2/3-D	One/Two/Three-Dimensional
A2T	Automatic Abstraction Tool
ABACuS	Analog BehAvioural Conservative SystemC-AMS
AC	Alternative Current
AC	Approximate Computing
AC/DC	Rectifier converting alternating current (AC) to direct current (DC)
ADC	Analog/Digital Converter
ADS	Advanced Design System
AFE	Analog Front-End
ALS	Approximate Logic Synthesis
AMS	Analog-Mixed Signal
ANT	Algorithmic Noise Tolerance
APB	Advanced Peripheral Bus
API	Application Programming Interface
ARC	Application Resilience Characterization
ASIC	Application-Specific Integrated Circuit
AST	Abstract Syntax Tree
AT	Approximately Timed
AWGN	Additive White Gaussian Noise
BCD	Bipolar-CMOS-DMOS
BEM	Boundary Element Method
BSIM	Berkeley Short-channel IGFET Model
C	Capacitance
CAD	Computer Aided Design
CMI	Compact Model Interface
CMOS	Complementary Metal Oxide Semiconductor
CPU	Central Processing Unit
CTE	Coefficient of Expansion
CTI	Charge Transfer Interconnect
C-V	Capacitance-Voltage
DAC	Digital to Analog Converter

DBC	Direct Bonded Copper
DC	Direct Current
DC/AC	Inverter converting direct current (DC) to alternating current (AC)
DC/DC	Power converter converting a source of direct current (DC) from one voltage level to another
DCT	Discrete Cosine Transform
DDT	Deft Data Types
DFE	Digital Front-End
DLP	Digital Light Processing
DMOS	Double-Diffused Metal-Oxide Semiconductor
DMOSFET	Double-Diffused Metal-Oxide Semiconductor Field-Effect Transistor
DoF	Degrees-of-Freedom
dps	Degrees per Second
DSP	Digital Signal Processor
E	Capacity
EDA	Electronic Design Automation
EEG	ElectroEncephaloGraph
EFSM	Extended Finite State Machine
EKF	Extended Kalman Filter
ELN	Electrical Linear Network
EM	Electromagnetic
En	Enable
ESD	Energy Storage Device
ESL	Electronic System-Level
ESR	Equivalent Series Resistance
FA	Full Adder
FEA	Finite Element Analysis
FEM	Finite Element Method
FFT	Fast Fourier Transform
FIR	Finite Impulse Response
FU	Functional Unit
GPS	Global Positioning System
HDL	Hardware Description Language
HdS	Hardware-dependent Software
HDTLib	HDL-oriented Data Types LIBrary
HEV	Hybrid Electrical Vehicles
HFVR	High-Frequency Voltage Regulator
HIF	HDL Intermediate Format
HS	High-Side
HVAC	Heating, Ventilation and Air Conditioning
HW	Hardware
I	Current
IC	Integrated Circuit
IIR	Infinite Impulse Response
IMU	Inertial Measurement Unit



IP	Intellectual Property
IPEM	Integrated Power Electronics Module
L	Inductor
LASER	Light Amplification by Stimulated Emission of Radiation
LBS	Laser Beam Steering
LCoS	Liquid Crystal on Silicon
LDPC	Low Density Parity Check
LOA	Lower-part Or Adder
LS	Low-Side
LSB	Least Significant Bit
LSF	Linear Signal Flow
LT	Loosely Timed
mW	milli-Watt
MAC	Multiply And Accumulate
MBD	Model Based Design
MDSP	Main DSP
MED	Mean Error Distance
MEMS	Micro Electro-Mechanical Systems
MIPS	Microprocessor without Interlocked Pipeline Stages
MMIO	Memory Mapped Input/Output
MoC	Model of Computation
MOEMS	Micro-Opto-Electro-Mechanical System
MOR	Model Order Reduction
MOS	Metal-Oxide Semiconductor
MOSFET	Metal-Oxide-Semiconductor Field-Effect Transistor
MPPT	Maximum Power Point Transfer
MSB	Most Significant Bit
MSE	Mean Square Error
MW	Mega-Watt
OCCAM	Ordinary C++ Code for Analogue Models
ODC	Observability Don't Care
OPAMP	Operational Amplifier
OSTC	Open Source Test Case
PBL	Probabilistic Boolean Logic
PC	Probabilistic Computing
PCB	Printed Circuit Board
Pcell	Parameterized layout Cell
PCMOS	Probabilistic CMOS
PDK	Process Design Kits
QCC	Quality Constraint Circuit
QPSK	Quadrature Phase Shift Keying
R	Resistor
RC	Resistor Capacitor
RF	Radio Frequency
RFID	Radio Frequency Identification

RLC	A resistor (R), an inductor (L), and a capacitor (C) connected in series or in parallel
ROM	Reduced-Order-Model
RPR	Reduced Precision Redundancy
RTL	Register Transfer Level
SALSA	Systematic methodology for Automatic Logic Synthesis of Approximate circuits
SiP	System-in-Package
SC	Stochastic Computing
SCNSL	SystemC Network Simulation Library
SDD	Significance Driven Design
SDE	Sentaurus Device Editor
SNR	Signal-to-Noise Ratio
SoB	System on Board
SOC	State Of Charge
SOI	Silicon on insulator
SPICE	Simulation Program with Integrated Circuit Emphasis
SW	Software
SVD	Singular Value Decomposition
TCAD	Technology Computer Aided Design
TCP/IP	Transmission Control Protocol/Internet Protocol
TDF	Timed Data-Flow
TIA	Transimpedance Amplifier
TLM	Transaction Level Modeling
TPMS	Tire Pressure Monitoring System
TSV	Through-Silicon Vias
UART	Universal Asynchronous Receiver-Transmitter
UAV	Unmanned Aerial Vehicle
UIS	Unclamped Inductive Switching
UNIVERCM	UNiversal VERsatile Computational Model
UVM	Universal Verification Methodology
UWB	Ultra-Wide Band
V	Voltage
VHDL	VHSIC Hardware Description Language
VHSIC	Very High Speed Integrated Circuit
VOS	Voltage Over-Scaling
$\mu$ W	micro-Watt