

An important aspect of embedded system design is being able to communicate effectively using the technical vocabulary associated with embedded systems. You should be able to define and communicate using the following terms before the end of the semester.

- 1 Embedded System, Microprocessor, Microcontroller
- 2 SoC, Application Processor, GPU, ARM, Atom, IoT
- 3 RAM, SRAM, DRAM, NVRAM, DDR, DMA
- 4 ROM, EPROM, EEPROM, Flash Memory, OTP
- 5 Oscillator, Crystal, Start-up Time, Clock Oscillator
- 6 Clock, Race Condition, Glitch, Jitter, Eye Diagram
- 7 Reset, Power-on, Manual, Brown-out
- 8 Noise, Ground Bounce, Noise Margin, Bus, Crosstalk
- 9 Transmission Line, Ringing, Reflections, Termination
- 10 EMI, EMC, Ground/Power Plane, Signal Integrity (SI)
- 11 CMOS, TTL, Logic Families, Switching Threshold
- 12 Totem-Pole Output, Open Collector/Open Drain Output
- 13 Fan-out, Fan-in, Pull-up/Pull-down Resistor, Floating
- 14 Contention, Drive Fight, Wire-OR/Wire-AND
- 15 Bypass/Decoupling Capacitor, ESR, ESL
- 16 In-rush Current, Voltage Droop, Power Integrity (PI)
- 17 Transistor, MOSFET, BJT, Beta, Saturation
- 18 Diode, Switching, Power, Zener, LED
- 19 Clamping Diode, Protection Diode, Leakage Current
- 20 Interrupt, NMI, Maskable, Edge/Level Triggered
- 21 Voltage Regulator, Thermal Grease, TIM, Heat Sink
- 22 Multiplexer, Multiplexed Address/Data
- 23 Buffer, Latch, Flip-Flop, State Machine
- 24 IC, ASIC, LSI, VLSI, Integration
- 25 Propagation Delay, Setup/Hold Time
- 26 Glue Logic, Chip Selects, PLD, FPGA, PAL/GAL
- 27 Address Decoding, Complete, Incomplete
- 28 Address Space, Memory Map, Aliasing, Ghosting
- 29 EPROM Emulator, Device Programmer
- 30 In-Circuit Emulator (ICE), Breakpoints, Traces
- 31 Debugger, JTAG, Scan Chain, Boundary Scan
- 32 Logic Analyzer, Pod, Disassembler, Trigger
- 33 ESD, Antistatic, Conductive, 'Walking Wounded'
- 34 Serial/Parallel Communication, SERDES
- 35 Asynchronous/Synchronous
- 36 RS-232, SPI, I²C, USB, IEEE 1394, IEEE 802.3
- 37 Op-Amp, Gain-Bandwidth Product, Slew Rate
- 38 Frequency Response, Unity Gain Buffer
- 39 Reconfigurable Logic, Platform FPGA
- 40 Cache, Pipeline, Embedded Core
- 41 Peripheral (PIC, PIT, LCD, etc.)
- 42 ADC, DAC, Resolution, Monotonic
- 43 Successive Approximation, Flash Conversion
- 44 Schematic, Wiring Diagram, Block Diagram, Layout
- 45 Wire-wrapping, Soldering, Cold Solder Joint
- 46 PCB, PCA, PWB, PWA, Via, Trace
- 47 Supervisory Circuit
- 48 Watchdog Timer, Low Voltage Detector
- 49 Transient Failures, Memory Hits, Signature Byte
- 50 Error Handling, ECC, EDC
- 51 RoHS, Pb Free, Green, EuP/ErP
- 52 Exception, Trap, Interrupt, IRQ
- 53 Vector Table, Reset Vector, Re-vectored Interrupt
- 54 ISR, Interrupt Service Routine, Interrupt Handler
- 55 Build Process, Editor, Preprocessor, Compiler
- 56 Assembler, Disassembler, Inline Assembly
- 57 Linker, Linkage Editor, Resolving
- 58 Profiler, Optimizer, Types of Optimization
- 59 Simulator, Interpreter
- 60 Monitor, Debugger, Source Level Debug
- 61 Tracepoint, Trace Buffer
- 62 Target, BSP, Board Support Package, Host
- 63 IDE, Eclipse, Code::Blocks, make, makefile
- 64 Lint/Splint, Version Control, Code Review
- 65 Source Code, Object/Machine Code, Library
- 66 Relocatable Object Code, Reentrant
- 67 Stack, Heap, Stack Pointer, Malloc, Free
- 68 Register, Register Variable
- 69 Interrupt Masking, Priorities, Latency
- 70 OS, RTOS (VxWorks, FreeRTOS, etc.), Executive
- 71 Processes, Tasks, Multi-tasking, Deadline
- 72 Preemptive, Cooperative, Time Slice, Scheduling
- 73 Context Switch, Latency
- 74 Blocked, Deadlock, Priority Inversion, Round Robin
- 75 Interprocess Communication, Messages, Mailbox
- 76 Queues, Signals, Semaphores, Mutex
- 77 Critical Section, Atomic Operation/Instruction
- 78 Resource Protection
- 79 Firmware, Embedded Software, BIOS, Microcode
- 80 Initialization Code, 'C Machine', Boot, Startup, POST
- 81 Memory Test, Walking 1's
- 82 Pointer, Dereferencing, Uninitialized
- 83 Main Loop, Infinite Loop
- 84 Interrupt Driven, Polling
- 85 Firmware State Machine
- 86 Big-Endian, Little Endian, Byte Order/Swapping
- 87 Native Word Size, Condition Codes
- 88 Globals, Locals, Scope, Initialized, Uninitialized
- 89 Scoping of variables and functions
- 90 Binary, ASCII, Hex, Hex Records, Intel, Motorola
- 91 Unsigned/Signed Variables
- 92 Function Prototype
- 93 Data Structures, Linked List, Struct, Union
- 94 FIFO, Circular Buffer, Lookup Table
- 95 Bandwidth, Throughput, Latency, Utilization
- 96 Floating Point, Coprocessor, Floating Point Library
- 97 Bank Switching
- 98 Switch Bounce, Software/Hardware Debouncing
- 99 Serial Interface, Bit Banging, I/O, GPIO
- 100 Testing - black box, white box, unit, regression
- 101 Code Review/Code Inspection
- 102 Encapsulation, Partitioning, Extern, Refactoring