Index

2.5D integration, 40, 120
2.9D integration, 118, 156
3D integration, 27
  3D DRAM, 293
  3D SRAM, 295, 305
wireless, 42

backplane, 225, 231
brain
  electronic, 307
  human, 301
bus
  multidrop, 218
  point-to-point, 218

capacitive coupling, 33, 44
CDR, 168, 246, 267
domain-specific architecture, 302
edge counting, 249
driving, 33, 34

coil
  diameter, 86, 88, 96, 106
  misalignment, 127, 142
  nested clover coils, 141
  nonuniform design, 185
  number of turns, 85, 97, 107
  Q-factor, 87, 130
  transimpedance, 86
  XY, 82, 97
collective synchronization, 188
coupler
  crimped termination, 8–9
  flexible printed circuit, 9
  scaling, 64–65
coupled resonation, 168, 188
dark silicon, 316
distributed computing, 25
DNN, 292
  AlexNet, 295, 297
  LeNet, 297
  linear quantization, 298
  log-quantization, 295, 298
  VGG, 295, 297

EMC, EMI, EMS, 92, 246, 252, 261
CISPR, 265
ISO, 270
ENIAC, 2, 300
equality, 63
ESD, 110
far-field, 51
FPGA
  reconfigurability, 303, 310
time-multiplexed, 304
gps, 253, 265, 271
HDTV, 108
hysteresis comparator, 79, 217
  threshold voltage, 82
IC
  history, 3
  leakage wall, 6
  power wall, 4
  scaling scenario, 4–5
  inductive coupling, 44
  injection locked array oscillator, 250
  intersymbol interference. See ISI
  ISI, 19
KGD, 50
knowledge-based society, 313
known good die. See KGD
LTE, 253
microbump, 33
MIPI, 241
Index

monolithic 3D IC, 28
Moore’s law, 3, 316
more than Moore, 50
NAND, 28, 39, 161, 275
stacking scheme, 163
near-field, 51
neuromodulator, 187
package-on-package. See PoP
PDM, 90, 104
phase-division multiplexing. See PDM
PoP, 20, 30
rectifier
half-wave, 137
NCG, 132
PMOS bridge, 132
SD card, 275
SerDes, 99, 111, 276
SoC, 12
society 5.0, 313
solid-state drive. See SSD
SSD, 161, 275
ECC, 282
statistical system design, 24
system-on-chip. See SoC
TCI
performance scaling, 57, 124
relayed communication, 165
through-silicon-via. See TSV
TLC
BD-TLC, 225
EE-TLC, 221
EM-Clip, C-TLC, 259
SDC-TLC, 224
T-TLC, 245, 254
two-pass, 227
VD-TLC, 238, 254
transmission line, 17, 61
transmitter
biphase pulse, 246
CML, 216
H-bridge, 78, 100
NMOS push-pull, 78, 100
pulse, 78, 101, 216
rapid turn-off, 125
SST, 216
TSV, 33, 39, 57, 121, 153, 188
via-last process, 35
via-middle process, 34
twisted pair, 259
Von Neumann bottleneck, 2
Von Neumann computer, 2, 300
Wi-Fi, 253
wired logic computer, 1, 300
wireless power
hot plug, 280
load tracking, 143
time-interleaved transmission, 145
vector summing scheme, 278