Electronic Design 1978 Annual Index of Articles

Circuits & Circuit Theory

Analyze, don't estimate, phase-lock-loop . . .ART, ED 10, p. 120

Bandwidth of phase-lock loops. . .ART, ED 6, p. 84

Binary counter allows a pseudorandom generator to run without interruption . . .IFD, ED 10, p. 134

Blowout-proof an inductive-load driver with a circuit that protects itself. . .IFD, ED 24, p. 164

Broadband op amps will be fast, too. . . NEWS, ED 21, p. 19

Build a constant-current source or sink with an unused comparator of a quad package. . .IFD, ED 3, p. 86

Change seven-segment data to BCD with a dedicated, single-chip converter . . .IFD, ED 25, p. 140

Circuit eliminates FET on-resistance to give attenuators automatic switching. . .IFD, ED 26, p. 100

Constant-frequency pulse-width modulator built with one-chip op-amp and comparator IC. . .IFD, ED 8, p. 110

Control analog signals with voltage. . .ART, ED 15, p. 68

Current inverters make current sources out of monolithic-IC d/a sink outputs. . .IFD, ED 2, p. 108

Debounce with inverters or logic gates and out go the pull-up resistors. . .IFD, ED 19, p. 148

Design one-shot multivibrators on a programmable calculator. . .IFD, ED 14, p. 102

Designing with a sample-hold won't be a problem if you use the right circuit . . .ART, ED 23, p. 84

Demodulate synchro signals with FETs. . . ART, ED 15, p. 76

Detect and hold an analog-signal peak with an a/d converter and an 8-bit latch . . .IFD, ED 16, p. 92

Divide input events with a low-cost voltage-programmed pulse sequencer. . .IFD, ED 11, p. 256

Double the frequency by adding some extra parts to an old circuit. . .IFD, ED 26, p. 98

Dual one-shot generates identical-width pulses from both edges of its input . . .IFD, ED 23, p. 134

Don't stumble over source impedance. . . ART, ED 1, p. 114

Drive low-impedance loads by paralleling operational amplifiers. . .IFD, ED 14, p. 104

ECL triple-line receiver makes a stable harmonic oscillator. . .IFD, ED 11, p. 252

Expand a Keyboard matrix by adding isolation diodes to a key encoder. . .IFD, ED 25, p. 144

Department Key

ART	Design Engineering
IFD	Ideas for Design
NEWS	News & Technology
PF	Product Feature
SR	Special Report

Fast-settling 12-bit d/a beats all other hybrids. . .PF, ED 13, p. 159

First alarm to trip can be identified by simple first-event detector. . .IFD, ED 16, p. 96

For high performance, go to hybrid circuits. . .SR, ED 13, p. 48

Gated programmable delay-line oscillator's repetition rate changeable every period. . .IFD, ED 3, p. 86

Generate sine-wave bursts for audio time-domain analysis. . .IFD, ED 15, p. 100

Get a controlled delay and ramp with a single CMOS inverter package. . .IFD, ED 7, p. 86

Get accurate absolute-value outputs with only one matched-resistor pair. . .IFD, ED 26, p. 102

Get control over oscillator duty cycle by adding one diode to circuit. . .IFD, ED 20, p. 96

Get high-Q in active bandpass filters with a quadrature modulation scheme. . . ART, ED 23, p. 124

Get wide-range digitally controlled audio attenuation with a companding d/a . . .ART, ED 23, p. 92

Here's a switch—analog and digital functions combined in a hybrid switch. . .IFD, ED 13, p. 124

IC d/a and three-terminal voltage regulator make a power d/a. . .IFD, ED 13, p. 122

Improve double-balanced mixer response with an active-circuit design. . .IFD, ED 6, p. 140

Instrumentation amp holds offset drift to 0.25 μV/°C. . .PF, ED 15, p. 118

Instrumentation amplifier programs gain digitally. . .PF, ED 10, p. 139

Keep track of a sample-hold from mode to mode to locate error sources. . .ART, ED 25, p. 100

Low-cost 16-bit d/a settles in 10 μs max . . .PF, ED 23, p. 178

Micropower CMOS astable saves power with four-layer diode. . .IFD, ED 15, p. 102

Modulo-N counter speed. . .ART, ED 6, p. 90

New source for 12-bit DAC80 cuts chip count to three. . .PF, ED 15, p. 122

Optimize phase-lock loops to meet your needs—or determine why you can't . . .ART, ED 19, p. 134

Parallel-to-serial converter senses positive-going edges. . .IFD, ED 17, p. 140

Pick sample-holds by accuracy and speed and keep hold capacitors in mind. . .ART, ED 26, p. 84

Precision sample-and-hold circuit drives output with a current source. . .IFD, ED 1, p. 154

Predict noise in digital systems. . .ART, ED 5, p. 64

Pseudorandom tone generator produces 16 tones over its frequency range. . .IFD, ED 11, p. 254

Pulse generator determines states of three-state bus drives. . .IFD, ED 3, p. 90

Put video a/d converters to work. . .ART, ED 16, p. 68

Reduce sampling errors by adding an RC network to your sample-and-hold. . . ART, ED 5, p. 68

Replace analog-to-digital converters. . . ART, ED 14, p. 84

Reset digital circuits reliably with a power-on pulse generator. . .IFD, ED 10, p. 132

Resynchronize staggered signals with cascaded RS flip-flops. . .IFD, ED 14, p. 106

Sample-and-holds and a summing amplifier form an analog memory unit . . .IFD, ED 12, p. 144

Sample/track-and-hold amp outdistances all comers. . .PF, ED 13, p. 160

Simple analog divider uses optical coupling in its feedback loop. . .IFD, ED 13, p. 120

Simple digital voting circuit detects a unanimous decision. . .IFD, ED 20, p. 94

Simple level shifter lets an IC modulator accept a unipolar input signal. . .IFD, ED 5, p. 70

Simple pulse stretcher uses just a single decade counter IC. . .IFD, ED 21, p. 251

Simplify conjugate bilateral matching . . .ART, ED 5, p. 54

Single-shot circuit gives independent control of time-delay and duration. . .IFD, ED 24, p. 166

Single-shot multi uses few parts, provides high noise immunity. . .IFD, ED 3, p. 84

Single zener sets thresholds for simple window comparator. . .IFD, ED 17, p. 138

Speedy math circuits perform both multiply and divide. . .PF, ED 7, p. 118

Statistical tolerancing. . .ART, ED 1, p. 134

Switch or latch large dc currents with a simple two-transistor circuit. . .IFD, ED 24, p. 168

Take advantage of op-amp slew rates to make a square wave triangular. . .IFD, ED 22, p. 124
Tape moves smoothly with LSI servo system. . .NEWS, ED 25, p. 20
Transistor switch and parallel-tee provide fast power switching. . .IFD, ED 23, p. 136
Try a Wien-bridge network. . .ART, ED 3, p. 80
Twin-tee filter rejects more than 70 dB with capacitance-multiplier circuit. . .IFD, ED 2, p. 104
Two counter chains fed by the same clock convert binary to binary-coded decimal. . .IFD, ED 22, p. 126
Quad comparator provides two functions —logic-level shifting and time delays. . .IFD, ED 12, p. 146
Versatile monolithic v/f's can compute as well as convert with high accuracy . . .ART, ED 25, p. 90
2-μs 12-bit a/d converter includes three-state buffers. . .PF, ED 16, p. 107
12-bit current-output d/a guarantees settling in 100 ns. . .PF, ED 20, p. 129
14-bit hybrid d/s squeezed into one tiny package. . .PF, ED 14, p. 120

Subject Listing

Circuits & Circuit Theory
Communications, Microwaves & Lasers
Components
Computers & Data Processing
Consumer Electronics
Displays & Electro-Optics
General Industry
Industrial Electronics
Management
Materials & Packaging
Microprocessors
Military & Aerospace
Power Sources
Semiconductors
Test & Measurement

Communications, Microwaves & Lasers

Binary-coded magnetron shifts frequency in ns. . .NEWS, ED 8, p. 35
Blank noise effectively with FM. . .ART, ED 18, p. 130
Chip set simplifies telephone interface . . .NEWS, ED 21, p. 20
Code your fiber-optic data for speed, without losing circuit simplicity. . .ART, ED 22, p. 84
Codec uses delta-sigma modulation and LSI chip. . .NEWS, ED 13, p. 38
Collect data via pulse-code modulation. . . ART, ED 6, p. 94
Communication-carrier tools grow with LSI, YIG advances. . .SR, ED 24, p. 92
Communication channel pared to just four ICs. . .NEWS, ED 19, p. 34
Computer model improves fiber-optic communications. . .NEWS, ED 12, p. 49
Digital fiber-optic transmission steams ahead. . .NEWS, ED 25, p. 25
Digital interpolation shoehorns speech channels. . .NEWS, ED 24, p. 19
Fiber-optic communications much bigger, much faster. . .NEWS, ED 13, p. 56
Fiber-optic links work better when matched with the right emitters. . .ART, ED 22, p. 112
Fiber-optic system aims at digital data links. . .PF, ED 4, p. 166
Fiber-optic systems reach for GHz but losses are still a big problem. . .SR, ED 10, p. 81
Fiber optics design is easy with preassembled data links. . .NEWS, ED 18, p. 39
Fiber optics, satellites, ICs share the spotlight. . .SR, ED 18, p. 73
Fiber optics to transmit analog signals without repeaters. . .ART, ED 22, p. 96
Field-repairable i-f strips cut purchase, inventory costs. . .PF, ED 2, p. 134
GaAs detector permits light-powered phone. . .NEWS, ED 25, p. 20
IC push into data communications relieves processors, cuts software. . .SR, ED 9, p. 42
Lasers and transmitters last 100,000 hours plus. . .PF, ED 23, p. 151
MNOS memories distributed processing improved for telemetry. . .NEWS, ED 24, p. 25
Microwave power tubes are more than just around—they're getting better. . .SR, ED 9, p. 50
Multichannel switches reliable enough for space. . .PF, ED 25, p. 142
Narrow beam may triple satellite communications. . .NEWS, ED 1, p. 35
Optical-fiber links. . .ART, ED 9, p. 78
Packet-switched data transmitted by radio. . .NEWS, ED 2, p. 20
Paramedics' load lightened by new voice/ECG radio. . .NEWS, ED 3, p. 22
Powerful lasers may make good power transmitters. . .NEWS, ED 8, p. 35
Progress is slow but steady in optical communications. . .NEWS, ED 2, p. 40
RAM-based multiplexer systems can save big chunks of hardware. . .ART, ED 19, p. 124
Radio stars calibrate 14-GHz earth stations. . .NEWS, ED 15, p. 18
Repertory dialer kit boils down to 10 chips . . .NEWS, ED 23, p. 28
Results are in: Fiber optics passes telecommunications test. . .SR, ED 22, p. 72
Send out analog data on the same line that supplies power to a v/f converter. . .IFD, ED 7, p. 90
Signals 'clipped' into fiber-optic cable . . .NEWS, ED 16, p. 21
Solve high-frequency impedance-matching problems with transmission lines. . .IFD, ED 19, p. 144
Specify low-speed modems properly. . . ART, ED 9, p. 72
Space diversity should open up K band to phone satellite links. . .NEWS, ED 7, p. 54
Telephone-filter IC is half a complete PCM interface. . .PF, ED 24, p. 255
Transceiver coding scheme doubles phone-channel capacity. . .NEWS, ED 23, p. 30
We won't forget how to make microwave tubes. . .NEWS, ED 5, p. 20

Components

Converters are finally blasting off, and μP compatibility is the fuel. . .SR, ED 8, p. 38
Ferromagnetics and ferroelectrics supply heat, cold and electricity. . .NEWS, ED 10, p. 52
Focus on pots and trimmers: Avoid variable performance with variable resistors. . .SR, ED 20, p. 101
Focus on relays: Do solid-state relays and electromechanicals really compete? . . .SR, ED 26, p. 119
Growing selection of components make interfacing easier. . .SR, ED 22, p. 60
High-voltage silicon surge suppressors turn-on in 80 ns, leak less than 8 μA. . .PF, ED 14, p. 111
Hybrid-compatible transformer brings new isolation products and applications. . .ART, ED 25 p. 110
International switch specs taking hold in Europe. . .NEWS, ED 24, p. 38
Keyboards for μP-based systems meet the challenge. . .NEWS, ED 25, p. 42
Mass-produced precise and stable resistors surpass wire-wound units. . .PF, ED 2, p. 115
Matching small ac motors. . .ART, ED 9, p. 118
Metal-film resistors. . .ART, ED 17, p. 122
Multilayer coil design. . .ART, ED 6, p. 102
Noise immunity of capacitive switch improves with flip-flop interface. . .IFD, ED 15, p. 98
Rare-earth magnets will shrink dc motors . . .NEWS, ED 10, p. 33
Reverse-biased ferrite cores. . .ART, ED 15, p. 86
Rocker switch/circuit breaker gives long life for low cost. . .PF, ED 17, p. 175
Simplify air-gap calculating. . .ART, ED 8, p. 94
Solid-state relay improved with zero-volt switching circuit. . .IFD, ED 4, p. 107
Thermistors make good thermometers. . . ART, ED 8, p. 90
Trimmer and resistor network combined in a DIP. . .PF, ED 1, p. 180
Twin capacitors boost feedthrough-filter reliability. . .PF, ED 1, p. 182
Two-weld design makes top-quality resistors better. . .NEWS, ED 21, p. 30
Wirewound precision and power resistors . . .ART, ED 9, p. 124
20-MHz a/d converter keeps speed high and cost low. . .PF, ED 1, p. 164

Computers & Data Processing

Any random number generator can have a Gaussian distribution. . .IFD, ED 8, p. 115
Applications for long-loop CCDs are far-ranging. . .ART, ED 18, p. 118

ANNUAL INDEX

Avoid losing data when line power returns to a battery-backup RAM system. . .IFD, ED 10, p. 130

Bubbles store 2Mbits. . .NEWS, ED 7, p. 24

Build a flexible firmware generator to control system-timing sequences. . .ART, ED 19, p. 130

CRT terminals will be more complex, but simpler to build. . .NEWS, ED 2, p. 34

CPU, memory and I/O cards slash pin count and size almost by half. . .PF, ED 18, p. 80

Chips, systems, and design: An early look at NCC. . .NEWS, ED 10, p. 38

Compute delay times of ALU adders. . . ART, ED 2, p. 100

Computer family gets high speed from hardware arithmetic unit. . .PF, ED 12, p. 188

Computer-power use cut by balancing delay times. . .NEWS, ED 10, p. 36

Computer programs cut IC design time in half. . .NEWS, ED 4, p. 23

Convert to complex-BCD. . .ART, ED 2, p. 86

Data-acquisition system slips inside its PDP-11 host computer. . .PF, ED 4, p. 135

Dedicated multiplier ICs speed-up processing in fast computer systems. . .ART, ED 19, p. 98

Densities, access, reliability—good and getting better in floppies. . .NEWS, ED 17, p. 51

Develop software with Flowgrams. . .ART, ED 16, p. 84

Diagnose computer ills. . .ART, ED 6, p. 56

Digital I/O board isolates 200-V. . .PF, ED 25, p. 124

Electron beams take aim at Gbyte memory systems. . .NEWS, ED 6, p. 21

Error correction goes on first 16-bit memory boards. . .PF, ED 23, p. 141

Fast, global Fortran compiler gives minis maxi capability. . .PF, ED 20, p. 113

First, magnetic bubbles—now, light bubbles. . .NEWS, ED 15, p. 18

First 256-k bubble chips boost speed by 50%. . .NEWS, ED 17, p. 33

Floppy drive stores more with less wear, tighter tolerances. . .NEWS, ED 23, p. 32

Focus on printers. . .SR, ED 16, p. 56

Focus on scientific calculators. . .SR, ED 5, p. 40

Four terminals make smart, low-cost systems. . .NEWS, ED 13, p. 37

Graphics card delivers color. . .PF, ED 25, p. 123

IEEE-488 bus works by designing a compatible a/d-d/a system. . .ART, ED 20, p. 88

Implement ALUs with functional blocks. . . ART, ED 1, p. 120

Interconnections for computers and instrumentation. . .SR, ED 22, p. 67

LSI controller makes it easier to tie a floppy drive to a computer. . .ART, ED 19, p. 90

Low-cost one-board computer includes printer, display and keyboard. . .NEWS, ED 13, p. 46

Lower-cost hard-disc memory systems, fill gaps in price and performance. . .NEWS, ED 12, p. 76

Make your time generator versatile. . .ART, ED 6, p. 120

Mini handles more users simultaneously, efficiently. . .NEWS, ED 4, p. 23

Mini/micro peripherals going up in ability, down in price. . .NEWS, ED 21, p. 46

Minifloppy-disc drive does more on less power. . .NEWS, ED 10, p. 35

Minis and μCs—a hit in class. . .NEWS, ED 11, p. 56

Minicomputer architecture: advance, but with caution. . .NEWS, ED 6, p. 26

Minicomputer can run IBM 370 software . . .NEWS, ED 10, p. 36

Minicomputer emulates most minis or micros. . .NEWS, ED 6, p. 22

Minitape drive offers big storage on small power. . .NEWS, ED 19, p. 34

Moving bit patterns or word groups can be a struggle—but not in Pascal. . .ART, ED 25, p. 126

Panel printer is compatible with DPMs . . .PF, ED 25, p. 170

Pascal isn't just one more computer language. It promises to be simple, flexible and fast. . .ART, ED 19, p. 82

Pascal 'runs' system. . .NEWS, ED 22, p. 19

Pascal's input and output procedures are powerful, yet easy to master. . .ART, ED 23, p. 100

Plotting routine produces compact, high-resolution graph. . .IFD, ED 7, p. 86

Powerful minicomputer thinks it's a mainframe. . .NEWS, ED 11, p. 37

Powerful statements and a versatile syntax give a Pascal program "body". . .ART, ED 20, p. 80

Put memory into your card reader. . .ART, ED 10, p. 100

REM digs out stored information. . .NEWS, ED 19, p. 38

Raster-matrix printer charts new speeds . . .NEWS, ED 12, p. 50

Reduce random-logic complexity. . .ART, ED 17, p. 98

Reduce your μC system's overhead. . .ART, ED 12, p. 122

Scientific calculator fits your wallet. . . NEWS, ED 11, p. 38

Self-correcting memory can cut service costs. . .NEWS, ED 12, p. 50

Self-testing terminals ease system trouble shooting. . .NEWS, ED 24, p. 40

Shopping for the right analog I/O board: software considerations come first . . .ART, ED 21, p. 238

Simplify operations with a serial-data parity generator that saves hardware. . .IFD, ED 19, p. 140

Smart peripherals are getting smarter and better. . .NEWS, ED 1, p. 35

Smart peripherals simplify a/d and improve both μC and mini setups. . .SR, ED 10, p. 70

Software packages ease mini/microsystem design. . .NEWS, ED 13, p. 37

Storage densities, speeds up as CCDs, bubbles emerge. . .SR, ED 18, p. 70

Structured higher-level language. . .ART, ED 18, p. 110

System performance rises as memory costs fall. . .NEWS, ED 10, p. 36

Take the dynamics out of dynamic RAM with an IC controller handling refresh . . .ART, ED 26, p. 72

Time was when a mini was a mini, a micro was a micro, and the picking was easy. . .SR, ED 2, p. 24

Timesharing and multiprocessing will make their own way at Wescon. . .NEWS, ED 19, p. 47

Two buses better than one for measurement, control. . .NEWS, ED 19, p. 34

Two flexible disc drives introduced at NCC . . .NEWS, ED 12, p. 50

User-terminal protocol standard ready for review. . .NEWS, ED 4, p. 24

With a real-time operating system, a Pascal program can run your test set. . .ART, ED 26, p. 78

Versatile groupings and user-defined data types make Pascal really shine. . .ART, ED 23, p. 106

μCs and minis will grow with multiprocessing, smart peripherals. . .SR, ED 1, p. 40

4-Mbit bubble-memory chips need E-beam masking, self-bias. . .NEWS, ED 23, p. 25

12-bit data-acquisition system is a real bargain at $139. . .PF, ED 18, p. 161

12-bit microprogrammable power miser runs PDP-8 programs on a single board . . .PF, ED 18, p. 90

256-kbit bubble chip improves on frequency, temp. . .NEWS ED 21, p. 27

Consumer Electronics

Alarm clock wakes you up—and puts the coffee on. . .NEWS, ED 2, p. 20

Computers in the home are only as good as their peripherals. . .SR, ED 10, p. 85

Fine metal gives tape double performance . . .NEWS, ED 16, p. 21

Flat, wide-screen TV projects from the rear. . .NEWS, ED 9, p. 38

How fast are you driving? That sign on the overpass knows. . .NEWS, ED 6, p. 38

Listen carefully: Your car's calling you. . . NEWS, ED 3, p. 22

Pro digital-audio tape recorders on the way. . .NEWS, ED 4, p. 24

Programs don't disappear in thumbwheel calculator. . .NEWS, ED 3, p. 21

Recursive filter reduces noise in color TV . . .NEWS, ED 25, p. 29

Ten-digit keyboard and CMOS circuits give low-cost electronic lock 151,000 codes . . .IFD, ED 18, p. 140

Turn a car's side marker lamps into 'turn' signals with a CMOS gate. . .IFD, ED 12, p. 148

With cassettes, video tape recorders have found a new home—in the home. . . NEWS, ED 5, p. 22

Displays & Electro-Optics

Alignment is the fiber-optic connector's main job—but accuracy starts with fibers. . .ART, ED 22, p. 104

Alphanumeric and graphic boards include μP software. . .PF, ED 12, p. 155

Audio disc decoded by laser diode readout . . .NEWS, ED 20, p. 22

CCD imaging devices getting bigger, more sensitive. . .NEWS, ED 25, p. 30

CRT brightness boosted by tweaking gun design. . .NEWS, ED 2, p. 19

CRT terminal features climb while costs keep falling. . .NEWS, ED 23, p. 47

Computer terminal displays more information by almost half. . .PF, ED 11, p. 261

Constant-current feedback loop improves photodetector performance in optical sensors. . .IFD, ED 6, p. 136

Designing a large-screen display is more than a matter of size. . .NEWS, ED 5, p. 24

ANNUAL INDEX

Digital addressing cuts the neck from a CRT. . .NEWS, ED 1, p. 36

Directly viewed incandescent displays. . . ART, ED 4, p. 76

Distributed optics may be key to large flat displays. . .NEWS, ED 16, p. 21

Dual laser carves out objects of any shape . . .NEWS, ED 6, p. 22

ECL devices drive LEDs without translating logic levels. . .IFD, ED 21, p. 253

Electro-optic crystal devices supply missing fiber-optic links. . .NEWS, ED 20, p. 34

Electrophoretic displays have a fighting chance against CRTs. . .NEWS, ED 1, p. 76

Emitters, detectors on the way for longer links, lower cost. . .SR, ED 22, p. 55

Etched-well diode cuts fiber-optic cost. . . NEWS, ED 20, p. 21

Fast LED pumps lots of IR into optical fibers. . .PF, ED 22, p. 177

Fiber-optic splicing made easier and quicker. . .NEWS, ED 1, p. 35

Flat cable coming for fiber optics. . .NEWS, ED 1, p. 36

Flat cold-cathode TV tube may be the long-sought answer to the CRT. . .NEWS, ED 10, p. 42

Fluorescent lamp lights with low-voltage batteries and a switching regulator IC . . .IFD, ED 25, p. 138

Focus on lamps. . .SR, ED 4, p. 54

Graphics CRT displays are easy. . .ART, ED 4, p. 68

Increased reliability and higher gain spurs new opto-isolator applications. . .ART, ED 26, p. 92

Integrated optical device does logic and more. . .NEWS, ED 20, p. 36

LC matrix display can be multiplexed . . .NEWS, ED 15, p. 17

Larger dot-matrix cell sharpens CRT characters. . .NEWS, ED 21, p. 20

Low-cost, flashing red LED has built-in IC timing circuit. . .PF, ED 2, p. 116

Low-cost LED arrays form bar-graph or point displays. . .PF, ED 23, p. 170

Mirror takes twinkle out of astronomer's eye. . .NEWS, ED 7, p. 24

MUXed LCD changes face of electronic watches. . .NEWS, ED 17, p. 34

Positive feedback speeds up low-cost opto-isolator response. . .IFD, ED 9, p. 142

Remote operation of optical sensor improves with coax interconnection. . .IFD, ED 22, p. 122

Simple, low-cost dot-joiner sharpens digital displays of analog data. . .ART, ED 23, p. 120

Single-mode lasers stretch out lifetime. . . NEWS, ED 22, p. 19

Slash CRT-terminal component count. . . ART, ED 14, p. 88

Stop display jitter with software. . .ART, ED 11, p. 246

Terminals get smarter, cheaper and color resolution is stronger. . .NEWS, ED 14, p. 52

Video analog-to-digital conversion. . .ART, ED 8, p. 66

Video monitor takes the lead in resolution and distortion. . .PF, ED 6, p. 163

General-Industry

Carter's to blame for energy crisis, says NSPE. . .NEWS, ED 5, p. 20

Electronica 78—an international look at products, developments. . .NEWS, ED 22, p. 25

R&D spending up in '78. . .NEWS, ED 2, p. 20

Industrial Electronics

'Beep beep' means 'Look out'. . .NEWS, ED 9, p. 38

Control system connects to I/O sensors. . . PF, ED 25, p. 168

Dual-laser system improves welding accuracy. . .NEWS, ED 3, p. 42

Forgeries no match for pressure/speed-sensing system. . .NEWS, ED 23, p. 29

Interface modules carry 2 A. . .PF, ED 25, p. 126

Laser system makes spot welds that stand up to inspection. . .NEWS, ED 23, p. 26

New industrial instruments need little human intervention. . .SR, ED 24, p. 100

PCBs get broken up by electron 'bullets'. . . NEWS, ED 2, p. 20

Regulate motor-shaft speed better with an active bridge. . .IFD, ED 4, p. 108

Signal-conditioning modules ease transducer interfacing. . .PF, ED 24, p. 232

Synchronizing giant generators. . .ART, ED 2, p. 94

Timer programs output cycles with 100-division IBM card. . .PF, ED 4, p. 150

Management

Bypassing dead ends. . .ART, ED 8, p. 106

Centralizing engineering. . .ART, ED 6, p. 128

Choosing the payoff R&D projects. . .ART, ED 13, p. 114

Choosing tomorrow's manager. . .ART, ED 15, p. 92

Educating your managers. . .ART, ED 9, p. 130

Expanding your research capabilities. . . ART, ED 12, p. 140

Getting your engineers to get business. . . ART, ED 1, p. 146

How to make technical teams more effective. . .ART, ED 19, p. 239

Managing creativity. . .ART, ED 17, p. 128

Retrain to avoid obsolescence. . .ART, ED 18, p. 134

Stimulating curiosity. . .ART, ED 17, p. 134

Materials & Packaging

Auto-inserter packs radial-leads. . .NEWS, ED 22, p. 20

Better contact techniques make better PC connectors. . .NEWS, ED 19, p. 54

Complete 12-bit a/d cut to just two chips . . .NEWS, ED 19, p. 33

Computer network, time sharing cut cost of designing PC boards. . .NEWS, ED 18, p. 40

Connector joins PCs—without pins or sockets. . .NEWS, ED 11, p. 38

Denser hybrids and PC boards mate with μPs—but watch those analogs. . .SR, ED 1, p. 50

ECL speeds handled by wire-wrapped boards. . .NEWS, ED 25, p. 34

Electron-beam welding joins formerly incompatible metals. . .NEWS, ED 19, p. 41

Farm out your PC board designs. . .ART, ED 13, p. 108

Feathered fan-blade edges keep high volume delivery quiet. . .PF, ED 24, p. 212

Fiber optics finds two ways to use DIPs. . . NEWS, ED 21, p. 19

Fiber optics, leadless packages create new connector needs. . .NEWS, ED 21, p. 25

Hybrid d/a races with the modules. . . NEWS, ED 17, p. 50

Hybrid technology's real potential. . .ART, ED 13, p. 102

Improved beam-tape carriers ease hybrid circuit testing. . .NEWS, ED 19, p. 39

Improved materials promise low cost, high reliability hybrid circuitry. . .NEWS, ED 18, p. 41

Kit mounts power semis properly. . .PF, ED 25, p. 148

Laying out ICs, PC boards may be computer-aided. . .NEWS, ED 1, p. 35

Low-power 16-bit a/d housed in 32-pin DIP . . .PF, ED 18, p. 94

Magnetic-shielding design does a better job for less. . .NEWS, ED 1, p. 35

Minimize fiber-optic-connector losses. . . ART, ED 17, p. 116

Mix-n-match fiber-optic with electric-wire contacts. . .PF, ED 22, p. 152

Moided printed-circuit holds chips flexibly . . .NEWS, ED 8, p. 35

New radiation standard for insulating materials. . .NEWS, ED 7, p. 24

Optical, electrical cables housed together . . .NEWS, ED 20, p. 22

Pins cool better than fins and push up power-supply ratings. . .NEWS, ED 15, p. 30

Redesigns cut DAC80 chip count, but small-volume prices stay steady. . . NEWS, ED 17, p. 43

Sculptured jumpers are flexible and tough . . .NEWS, ED 14, p. 35

Simplified ZIF connectors operate contacts in sequence. . .NEWS, ED 25, p. 19

To terminate plastic-clad silica fibers, first strip and reclad the ends. . .ART, ED 22, p. 118

UV-triggered bond curing takes minutes, not hours. . .NEWS, ED 23, p. 20

Upgraded connector satisfies revision G. . . NEWS, ED 15, p. 18

12-bit data converters pack more than ever in standard DIPs. . .PF, ED 22, p. 143

12-bit successive-approximation a/d does it all with just two chips. . .ART, ED 20, p. 68

Microprocessors

Add-on system upgrades programming to 8086. . .NEWS, ED 24, p. 19

Advanced one-chips, μP development from National. . .NEWS, ED 17, p. 33

All-in-one development station makes programming easier, faster and less expensive. . .PF, ED 4, p. 117

Avoid modifying your μP program when you change option ROMs. . .IFD, ED 17, p. 142

Better compiler, Fortran language boost the Z-80. . .NEWS, ED 18, p. 35

ANNUAL INDEX

Bipolar slices are coming out faster. . . NEWS, ED 14, p. 36

Bit-slice μPs easier, cheaper to use. . . NEWS, ED 21, p. 20

Build a microprocessor-development system. . .ART, ED 1, p. 126

Bus handles different microprocessors—just switch processor and program cards. . .ART, ED 21, p. 220

Bus standard for μCs, has small boards, few lines. . .NEWS, ED 17, p. 33

Can one μC development system be 200 times more powerful than another? Shop and see. . .ART, ED 25, p. 80

Capabilities of the Z80. . .ART, ED 14, p. 76

Complex systems are simple to design . . .ART, ED 18, p. 100

Designing μP software in 'modules' speeds development, ups reliability. . .NEWS, ED 11, p. 51

Develop cooperative μP subroutines. . . ART, ED 12, p. 116

Develop μP software efficiently. . .ART, ED 15, p. 62

Developing microcomputer software. . . ART, ED 11, p. 228

Digital I/O for DEC μCs comes on single board. . .NEWS, ED 24, p. 20

Disposable keys open μP-controlled locks . . .NEWS, ED 4, p. 24

Distributed microprocessing enters the business world. . .NEWS, ED 5, p. 26

Distributed μP systems advance process-control designs. . .NEWS, ED 21, p. 34

Easy-to-talk-to development system simplifies programming with three μPs . . .PF, ED 18, p. 84

Emulate your MOS microprocessor. . .ART, ED 8, p. 74

Fast μC card handles complex math, DMAs, interrupts—and fits SBC-80 system. . .PF, ED 13, p. 131

First 16-bit support boards mate with TI microcomputer. . .PF, ED 2, p. 136

Fit your μC with the right software package. . .SR, ED 14, p. 64

Get minicomputer features at ten times the 8080 speed with the 8086. . .ART, ED 20, p. 60

Handle microcomputer I/O efficiently. . . ART, ED 13, p. 70

High-end μPs don't exist, are hard to define, but they're coming. . .NEWS, ED 7, p. 50

High-performance ECL slice family coming. . .NEWS, ED 21, p. 19

High-speed digital-multiplier design illustrates the power of ECL bit slices. . . ART, ED 23, p. 114

Illuminating μC simplifies air navigation . . .NEWS, ED 1, p. 36

Improved microprocessor interrupt. . . ART, ED 9, p. 96

Keep the memory interface simple. . .ART, ED 9, p. 84

Know a microcomputer's bus structure. . . ART, ED 13, p. 78

LSI chips, boards go as high as minis. . . NEWS, ED 17, p. 44

Low-cost printer works 'expensively' with μP. . .NEWS, ED 9, p. 38

Low-power CMOS/SOS types of NMOS μPs are on the way. . .NEWS, ED 9, p. 37

MC68000 16-bit microprocessor to offer wide address range, powerful commands. . .NEWS, ED 15, p. 28

Make the most of bit-slice flexibility and design high-performance processors. . . ART, ED 21, p. 226

Mating micros to the IEEE-488 bus doesn't take many connections. . .ART, ED 24, p. 152

Microcomputer data manual. . .SR, ED 11, p. 65

Microcomputer data pages. . .SR, ED 11, p. 82

Microcomputer prototyping kit helps design systems with the 8086. . .PF, ED 15, p. 126

Microcomputers. . .ART, ED 13, p. 86

Microprocessor data manual. . .SR, ED 21, p. 53

Microprocessor kills its own operation after completing a control sequence . . .IFD, ED 18, p. 142

Microprocessor talks to 'dumb' peripherals with minimal use of address space . . .IFD, ED 9, p. 140

Microprogram for fast processing using bipolar LSI bit-slice circuits . . .ART, ED 19, p. 114

Minis, look out: Here comes a power family of 16-bit μC chips. . .NEWS, ED 12, p. 54

Multi improvements coming with new μCs, software. . .SR, ED 18, p. 71

Multiple μPs and discs make one powerful system. . .NEWS, ED 13, p. 37

Multiplying with a microcomputer. . .ART, ED 2, p. 78

Multiprocessing adds muscle to μPs. . . ART, ED 11, p. 238

Multiprocessing boosts microcomputer . . .ART, ED 6, p. 72

Multitask μP executive routine uses only six instructions. . .IFD, ED 4, p. 101

Multi-user cross-development system serves all microprocessors—fast. . .PF, ED 15, p. 140

New single-board 16-bit μCs may soon be challenged by 16-bit chips. . .NEWS, ED 11, p. 52

One CMOS chip ties μPs to remote peripherals. . .NEWS, ED 16, p. 21

One-DIP a/d or d/a converter fits microprocessor like a glove. . .PF, ED 8, p. 139

Operating systems enhance μCs. . .ART, ED 13, p. 94

Peripheral analog I/O boards and DEC μCs are made for each other. . .PF, ED 18, p. 92

Powerful contender coming for 16-bit μC designs. . .NEWS, ED 14, p. 35

Prepare for an LSI micro, memory invasion at Wescon. . .NEWS, ED 16, p. 27

Quantize the feedback. . .ART, ED 6, p. 110

Reduce your μC-based system. . .ART, ED 3, p. 56

Second-generation 16-bit μCs are here—but so are plenty of software problems . . .ART, ED 23, p. 66

Single-board micro offers 16-bit minicomputer power. . .PF, ED 14, p. 113

Single-chip μC can work with analog signals. . .NEWS, ED 16, p. 22

Single-chip μC with EPROM is a reprogrammable 3870. . .NEWS, ED 19, p. 34

Software removes limitations to single-chip μP performance without boosting system cost. . .ART, ED 25, p. 134

Speedy slices get faster as development costs drops. . .NEWS, ED 22, p. 19

Strapping changes modes in 16-bit microprocessor. . .NEWS, ED 5, p. 19

Super home μC language based on Pascal, APL. . .NEWS, ED 23, p. 20

Support getting stronger as μPs advance to 16-bit level. . .SR, ED 18, p. 66

System monitor keeps track of microcomputer performance. . .PF, ED 5, p. 80

Take advantage of powerful instructions . . .ART, ED 6, p. 62

Triple-bus architecture. . .ART, ED 15, p. 54

Weigh hardware and software options to optimize your μP design solutions . . .ART, ED 19, p. 106

When one μP controls another. . .ART, ED 2, p. 72

μC future looks rosy to μP makers and users. . .NEWS, ED 9, p. 37

μC phone will dial, compute, tell time. . . NEWS, ED 8, p. 36

μC programming easier with ROM interface cards. . .NEWS, ED 6, p. 22

μCs tackle several programs. . .ART, ED 17, p. 108

μP and μC-based control systems cut engine pollution, up mileage. . .SR, ED 15, p. 20

μP-based controller handles analog loops and relay logic. . .PF, ED 20, p. 112

μP-based DVM offers a bundle of information. . .NEWS, ED 7, p. 24

μP-controlled tester cuts mini-based cost by half. . .NEWS, ED 3, p. 22

μP controls pay-phone calls—and collections. . .NEWS, ED 3, p. 42

μPs help cut heat bills and sync film-strip sound. . .NEWS, ED 3, p. 21

4-bit microcomputers. . .ART, ED 2, p. 60

8-bit compatible or mini-like, 16-bit 1-board μCs do more faster. . .NEWS, ED 24, p. 30

12-bit data-acquisition system interfaces directly with μPs. . .PF, ED 8, p. 140

16-bit μPs to offer performance, address range, data paths of minis. . .NEWS, ED 18, p. 46

8048 family has the biggest memory. . . NEWS, ED 23, p. 19

8085-based computer fits almost any space and budget. . .PF, ED 20, p. 114

Military & Aerospace

Airborne TV systems are jammable, but μPs may be part of a solution. . .NEWS, ED 6, p. 32

Aircraft weather radar puts radome on the wing. . .NEWS, ED 4, p. 23

Automatic, Navy receiver frees pilot's fingers. . .NEWS, ED 8, p. 36

Military interest spurs advances on all fronts. . .NEWS, ED 22, p. 75

Spec group may speed up military device approval. . .NEWS, ED 7, p. 23

Power Sources

Add a standby battery to a RAM. . . ART, ED 15, p. 80

Add foldback protection to your supply and stop pass-transistor failures. . .IFD, ED 3, p. 94

ANNUAL INDEX

Boost high-voltage dc outputs. . .ART, ED 7, p. 72

Control EMI from power supplies. . . ART, ED 4, p. 84

Dc-to-ac power inverter drives ac cooling fans. . .IFD, ED 1, p. 158

Designing out losses makes UPS portable . . .NEWS, ED 25, p. 20

Dual-voltage regulated 5-A supply has adjustable outputs that track. . .IFD, ED 8, p. 110

Electrode can double battery storage . . .NEWS, ED 24, p. 20

Find out there's a 'brownout' before equipment goes haywire. . .IFD, ED 20, p. 98

First DIP nickel-cadmium batteries for PC power. . .NEWS, ED 7, p. 23

Focus on batteries. . .SR, ED 12, p. 88

Focus on switching power supplies. . .SR, ED 17, p. 72

Higher efficiencies will soon make solar-cell systems competitive. . .NEWS, ED 1, p. 74

Hold that line. . .ART, ED 4, p. 94

IC-compatible hybrid dc/dc converter delivers four isolated bipolar outputs. . .PF, ED 18, p. 82

Inexpensive circuit monitors voltage conditions in battery-operated equipment . . .IFD, ED 5, p. 72

Monitor both voltage and current levels to protect your power supply and load. . . ART, ED 25, p. 116

New NiCd battery lives longer, takes more heat. . .NEWS, ED 24, p. 20

Opto-isolated overload circuit senses current in HV line. . .IFD, ED 21, p. 249

Pick the right dc/dc converter. . .ART, ED 12, p. 104

Positive reference-voltage IC is flipped negative by adding a single component . . .IFD, ED 4, p. 98

Problem studies aimed at microwave solar energy. . .NEWS, ED 2, p. 20

Protect your rechargeable battery. . .ART, ED 12, p. 112

Regulator performs symmetry corrections in a push-pull switching power supply . . .IFD, ED 19, p. 142

Save your batteries with a motion-sensing power switch that has delayed turn-off . . .IFD, ED 9, p. 138

Solve test problems caused by switching-type power supplies. . .IFD, ED 1, p. 152

Switcher lets you add power without worrying about interaction. . .PF, ED 18, p. 168

Switcher regulates outputs independently . . .PF, ED 18, p. 96

Switching supply converts −60 V to +5 and ±6.3 V with 83% efficiency. . .IFD, ED 2, p. 106

Supervisory circuit is all that's needed to monitor, control power-supply outputs . . .PF, ED 17, p. 149

Tailor-make your own μP power supply. . . ART, ED 9, p. 104

Transistor protects floating regulator in high-voltage applications. . .IFD, ED 9, p. 136

Ultrathin batteries really shaping up. . . NEWS, ED 20, p. 21

Upgrade your switchers analytically. . . ART, ED 10, p. 108

Semiconductors

Alpha particles may be cause of soft errors in memory. . .NEWS, ED 11, p. 37

Analog chips are becoming systems: New LSI merges analog and digital. . .NEWS, ED 4, p. 26

Bandwidths as wide as 18 GHz in GaAs FET . . .NEWS, ED 18, p. 35

Broadband microwave GaAs FET holds noise to 3.1 dB at 14 GHz. . .PF, ED 20, p. 120

CCD analog multiplexers draw 0.1 mW but handle 32 inputs. . .PF, ED 8, p. 160

CMOS: Higher speeds, more drive and analog capability expand its horizons. . . ART, ED 23, p. 74

CMOS-on-SOS puts new μPs, memories on the horizon. . .NEWS, ED 24, p. 27

CMOS performance, cost makes digital just part of its story. . .NEWS, ED 23, p. 52

Charge-coupled devices. . .ART, ED 16, p. 76

Crystal-growth process speeds electrons in ICs. . .NEWS, ED 22, p. 19

DAC simplifies μP interface; it acts like a memory location. . .PF, ED 7, p. 114

Decade counters to have on-chip MNOS memories. . .NEWS, ED 18, p. 36

Discrete-component development spurred by switching supplies. . .SR, ED 1, p. 56

EAROMS, static RAMS better with CMOS/SOS. . .NEWS, ED 24, p. 28

E-beam + X-ray litho = high density circuit . . .NEWS, ED 2, p. 19

E-beam and X-ray technology—a must for the high-density ICs of the 1980s. . .SR, ED 13, p. 40

Fast-blowing PROM fuses may not grow back, either. . .NEWS, ED 7, p. 23

Fast 1-k RAM's access time cut in half . . .NEWS, ED 11, p. 37

Fast 4-k, and byte-wide static RAMs are pushing into new designs. . .NEWS, ED 12, p. 64

Fastest monolithic a/d delivers 8 bits in 50 ns. . .PF, ED 7, p. 116

Field-programmable logic array decodes keyboard without a debounce circuit. . . IFD, ED 6, p. 138

First 64-k dynamic RAM: a jump ahead for TI. . .NEWS, ED 19, p. 37

Forget the bugs in 4-k and 16-k RAMs—the big news is at 64-k. . .NEWS, ED 3, p. 34

Full-wafer MNOS memory faster than bubbles. . .NEWS, ED 23, p. 19

GaAs FETs, logic devices up the Rockwell road. . .NEWS, ED 23, p. 19

Hanging transistors, slim silicon make very fast monolithic converter. . .NEWS, ED 8, p. 52

IC accelerometer—so tiny, it monitors the heart from within. . .NEWS, ED 4, p. 36

IC op amps have evolved. . .ART, ED 1, p. 94

IEDM: The big news is VLSI, but fiber optics, discretes keep pace. . .NEWS, ED 23, p. 34

If you want a high-accuracy zener, specify time stability, not temperature coefficient. . .IFD, ED 10, p. 132

Improved processing will boost high-performance memories, μPs. . .SR, ED 1, p. 44

LSI chips slash complexity of interfacing with the IEEE-488. . .NEWS, ED 21, p. 32

Low-cost speech synthesizer on a chip. . . NEWS, ED 15, p. 32

Lowest-power UV EPROM has dual-line control. . .NEWS, ED 25, p. 19

MOS-controlled triac combines low input power, high output power. . .NEWS, ED 4, p. 32

MSI beats μPs and custom LSI—sometimes. . .NEWS, ED 12, p. 49

Memories have hit a density ceiling but new processes will push through. . . NEWS, ED 22, p. 42

Monolithic circuit converts voltage to frequency with tightest wide-range tempco. . .PF, ED 9, p. 176

Monolithic op amps getting faster and broader. . .NEWS, ED, 22, p. 26

More speed, greater density keep PROMs in the game against EPROM. . .NEWS, ED 15, p. 42

Multipliers work faster, burn less for the same price. . .PF, ED 19, p. 151

Multivalued logic boosts chip density. . . NEWS, ED 10, p. 35

NCC: Memories are growing fast, and so is Japanese semi industry. . .NEWS, ED 11, p. 42

New GaAs FETs—less noise, higher power and broader bandwidth. . .NEWS, ED 3, p. 38

Now custom LSI circuits are practical, economical without high volumes. . . NEWS, ED 20, p. 38

Now there are many good memories, but choosing is getting confusing. . .SR, ED 19, p. 77

Op amp delivers precision while consuming only 175 μW. . .PF, ED 15, p. 111

Optical communications, computing get a semiconductor boost at SPIE. . .NEWS, ED 17, p. 39

PROM family is fastest and densest—and plugs right into expandability. . .PF, ED 12, p. 155

Power MOSFETs reach new performance levels. . .NEWS, ED 25, p. 28

Power semi devices handle more power in all ranges. . .NEWS, ED 1, p. 72

Precision bipolar-FET op amp holds input bias current to 25 pA. . .PF, ED 18, p. 86

Put BIFETs into your linear circuits. . .ART, ED 1, p. 104

RAM cell promises 64 k with existing rules . . .NEWS, ED 6, p. 21

ROMs and PROMs are moving to greater densities, compatibility. . .NEWS, ED 14, p. 40

Refresh, control on one chip takes pain out of dynamic RAM. . .NEWS, ED 24, p. 36

Sapphire ribbons bring the cost of CMOS/SOS circuits way down. . .NEWS, ED 15, p. 36

Scaling will increase RAM capacity to 64 k. . .NEWS, ED 9, p. 38

Schottky-diode/FET logic bring VLSI into the real world. . .NEWS, ED 5, p. 19

Schottky or high-speed pn rectifiers. . . ART, ED 7, p. 66

Schottky power diodes run at high junction temperatures. . .PF, ED 5, p. 77

Sensing thermal gradients raises peak IC currents. . .NEWS, ED 12, p. 50

Signetics improves memories, peripherals. . .NEWS, ED 23, p. 20

Single-chip CCD memory really delivers. . . ART, ED 17, p. 88

Single-supply, 16-k dynamic RAM is ready for denser systems. . .NEWS, ED 19, p. 64

ANNUAL INDEX

Speed's up in 'fast' transistors, but. . . NEWS, ED 7, p. 26

Switching power transistors operate at 40 kHz and faster. . .PF, ED 18, p. 154

TI is readying a new chip arsenal. . .NEWS, ED 14, p. 36

Timer/counter chip relieves CPU of controlling peripherals. . .NEWS, ED 16, p. 34

True 12-bit CMOS multiplying d/a converter is low-priced. . .PF, ED 6, p. 151

VLSI devices are on the way—and the first ones will be 'memorable'. . .NEWS, ED 7, p. 42

Variable speech control goes monolithic . . .NEWS, ED 24, p. 19

Very large-scale integration to be very big at IEDM. . .NEWS, ED 22, p. 23

Wide-word RAMs are smart enough to work with the latest μPs. . .NEWS, ED 16, p. 41

World's fastest 4-k static speeds up cache designs. . .NEWS, ED 15, p. 17

4-k CMOS RAMs getting easier to find. . . NEWS, ED 14, p. 36

20-MHz counter chip replaces 13 MSI parts. . .NEWS, ED 18, p. 36

64-k dynamic RAM samples due by the end of the year. . .NEWS, ED 18, p. 35

64-k dynamic RAMs are here with high speed, low power. . .NEWS, ED 20, p. 27

Test & Measurement

ATLAS test language gets its own portable compiler. . .NEWS, ED 22, p. 27

Analyzer fast enough to emulate Z80A system. . .NEWS, ED 19, p. 33

Analyzer's got the tool for best stability measurement. . .PF, ED 11, p. 262

As ATE software gets simpler, cheaper, tester features increase. . .NEWS, ED 11, p. 54

As test and measuring instruments spread out, safety concerns grow. . .NEWS, ED 2, p. 36

At long last, UL1244—but now what happens. . .NEWS, ED 17, p. 34

Automatic LSI test programs less 'impossible' to create. . .NEWS, ED 22, p. 28

Automatic testers can characterize as well as inspect. . .SR, ED 24, p. 84

Benchtopper tests many d/a converters. . . PF, ED 18, p. 94

Boards put analyzer in the factory or field . . .NEWS, ED 18, p. 36

Broadest-band spectrum analyzer uses new LO and mixer. . .NEWS, ED 25, p. 27

Build a precision low-power thermometer around an LSI a/d converter. . .IFD, ED 21, p. 244

Build hardware that keeps working. . .ART, ED 10, p. 124

Build your own stepping motor tester. . . ART, ED 9, p. 112

Bus analyzer 'thinks big' but goes for small price. . .PF, ED 4, p. 148

Closed-loop testing and computer analysis aid design of control systems. . .ART, ED 24, p. 132

Choosing a scope to measure time. . .ART, ED 6, p. 78

Convert a temperature-to-frequency signal into four BCD digits and read °F or °C. . .IFD, ED 3, p. 90

Crystal oscillator brings high stability to battery devices. . .NEWS, ED 17, p. 42

DMM responds to rms, average and peak ac. . .NEWS, ED 12, p. 50

DMMs, counters, sources, scopes give answers—not just readings. . .SR, ED 24, p. 60

DVM calibration handles source errors . . .NEWS, ED 25, p. 19

Desktop logic analyzer retains debugging power. . .PF, ED 24, p. 184

Designing an rf counter. . .ART, ED 14, p. 98

Digital transducer, μC measure mass directly. . .NEWS, ED 21, p. 38

Display monitor selection: It's not as simple as you might think. . .ART, ED 24, p. 118

Evaluate UV EPROM data retention. . .ART, ED 7, p. 82

Field-service testers help circuit designers, too. . .NEWS, ED 14, p. 46

First CCD tester handles every semi memory. . .NEWS, ED 11, p. 37

Focus on Digital Panel Meters. . .SR, ED 10, p. 90

Focus on FFT spectrum analyzers: Know what makes them measuring computers. . .SR, ED 24, p. 170

Geothermal logger to read temp, pressure, flow rate. . .NEWS, ED 5, p. 20

Great plotter resolution, performance at half the price. . .PF, ED 17, p. 167

HP counter uses LSI to sell for under $1000. . .NEWS, ED 20, p. 21

Hand-held DMM looks like a calculator—works like a systems meter. . .ART, ED 17, p. 60

How to test μPs and μP products—a good question looking for answers. . .SR, ED 10, p. 75

IC flowmeter measures blood in two directions. . .NEWS, ED 2, p. 19

In-circuit tests find more faults on PC boards. . .NEWS, ED 12, p. 60

Instrument cost and weight cut for new applications and users. . .SR, ED 1, p. 62

Intelligent DVM automatically switches from ac to dc and measures up to 1 kV . . .IFD, ED 16, p. 94

Interface retrofits synthesizers to the 488 . . .PF, ED 18, p. 96

Join 488-bus instruments and efficient software for fast, automatic tests. . . ART, ED 24, p. 142

Keep your rectifiers cool. . .ART, ED 10, p. 116

Latest logic analyzers offer more functions and less cost. . .SR, ED 3, p. 26

Logging DMM scans, prints, converts data —all by itself. . .PF, ED 19, p. 170

Logic analyzer grabs 32 lines of data at rates to 100 MHz. . .NEWS, ED 19, p. 71

Logic analyzer 'shoots' ahead of today's units. . .NEWS, ED 17, p. 34

Logic analyzers aren't all alike. . .ART, ED 3, p. 70

Low-cost logic-level indicator shows high, low, and open circuit. . .IFD, ED 21, p. 246

Measure SCR parameters automatically. . . ART, ED 7, p. 76

Mini scope with DMM and counter packs three tools into one package. . .PF, ED 22, p. 134

Modulation analyzer calibrates itself for greater accuracy. . .NEWS, ED 18, p. 44

New digital tools evolve for bus-oriented μP systems. . .SR, ED 24, p. 74

Now choosing the right logic analyzer requires a logical approach. . .ART, ED 24, p. 108

Now you can test the fiber in a fiber-optic link. . .NEWS, ED 15, p. 38

Now digital multimeters are a low-cost—and accurate—way to measure ac. . . NEWS, ED 16, p. 30

Plan a programmable pulse generator. . . ART, ED 8, p. 74

Product serviceability. . .ART, ED 8, p. 100

Programmable counter ups resolution while stable cousin heads for the field . . .PF, ED 18, p. 88

Programmable generator tests multichannel logic hardware. . .PF, ED 18, p. 149

Programmable pulse gen gives best setting accuracy. . .PF, ED 1, p. 163

Programmable signal generators bring high spectral purity. . .PF, ED 24, p. 181

Programmable timer's got the modules for unlimited output. . .PF, ED 19, p. 156

Put testability into PC boards. . .ART, ED 12, p. 128

Sense temperature remotely with IC temperature/current transducers. . .IFD, ED 18, p. 138

Serial-data analyzer preprograms all functions. . .PF, ED 7, p. 100

Service instruments gearing up to troubleshoot μP-based products. . .NEWS, ED 21, p. 28

Signature analysis moves into production testing. . .NEWS, ED 16, p. 36

Smart data logger lets you define its functions. . .PF, ED 20, p. 111

Smart data logger reaches out for data. . . PF, ED 22, p. 182

Speed 4-k or 16-k RAM evaluation with a low-cost raster-scan tester. . .ART, ED 19, p. 114

Stop dropped bits in EPROMs. . .ART, ED 18, p. 126

Stretch your sampling scope's. . .ART, ED 1, p. 142

Synchro meter taps power from reference . . .PF, ED 25, p. 178

Synthesized signal generators reach new 'low' in signal purity. . .NEWS, ED 23, p. 27

Synthesizer/function generator does more than 'just' up resolution to 11 digits. . . PF, ED 9, p. 165

Team up a dual-LED and a dual-timer to get the logic states of two binary lines . . .IFD, ED 23, p. 138

Temperature cycler/controller comes all in one compact package. . .PF, ED 21, p. 287

Test your charge-pump phase detectors . . .ART, ED 12, p. 134

Three-point probe tracks faulty ICs on PC boards. . .NEWS, ED 8, p. 36

Tired of just reading results? Let your instrument do the talking. . .ART, ED 24, p. 160

To specify a time-base oscillator, you'd better know your crystals. . .ART, ED 24, p. 126

True-rms measurements come of age as new DVM cuts price, eases use. . .PF, ED 7, p. 97

Universal counter cashes in on LSI to deliver full functions at low cost. . .PF, ED 21, p. 257

10-MHz counter IC is instrument on a chip . . .NEWS, ED 13, p. 38