



BeeProg2

extremely fast universal 48-pin drive programmer

DEVICE PROGRAMMERS COMPANY

● **extremely fast programming**, one of the fastest programmers in this category. Programs 64-Mbit NOR Flash memory less than 9 sec. and 1Gbit NAND Flash less than 70 sec.

● **48-pins powerful pindrivers** ● **ISP connector for in-circuit programming** ● **dual connection to PC:**

USB (up to 480 Mbit/s) or parallel (printer) port

● **friendly SW, Windows 98/Me/NT/2000/XP/2003/XPx64/Vista/7 compatible**

● **unique quick reaction to customer's needs - software update can be ready within a day** ● **Multiprogramming possibility by attaching more**

programmers to one PC

● **3 year warranty**



device	Size [bits]	Program-Verify [s]
QB25F640S33 (Serial Flash)	800200x8 bit (64 Mega)	30,7
Am29DL640G (parallel NOR Flash)	400080x16 bit (64 Mega)	24,0
K8P6415UQB (parallel NOR Flash)	400100x16 bit (64 Mega)	13,0
K9F1G08U0M (NAND Flash)	8400000x8 bit (1 Giga)	122,7
AT89C51RD2 (microcontroller)	10000x8 (512 kilo)	15,0
PIC18LF452 (microcontroller)	4000Hx16 (256 kilo)	4,0

Programmer price includes too:

- free technical support (hot line)
- free life-time software update via Internet



more than
50 000
devices
supported

valid for November 2009
see actual information:
www.elnec.com



FREE
SW update

NEW!
11 / 2009



SGS-Thomson M29W640F1
Port: See Device +F1>
Note: See also Device +F1>
To customize device menu View/edit list of settings +F1>

Filename: c:\prj\ran16MB.bin Size: 16777217 bytes

Features

GENERAL

- BeeProg2 is next generation of USB/LPT-compatible, Windows 98/ME/NT/2000/XP/2003/XP64/Vista/7 based **ELNEC universal programmers**, built to meet the strong demand of the small manufacturing and developers community for the fast and reliable universal programmer.
- **Supports all types** of the silicon technologies found in the **programmable devices** of today and tomorrow without family-specific modules. You can be sure that new device support will require only a software update and (if necessary) a simple package converter (programming adapter), therefore **minimizing ownership costs**.
- Using built-in in-circuit serial programming (**ISP**) connector, the programmer is able to program ISP capable chips in circuit.
- BeeProg2 isn't only a programmer, but also a **tester** of TTL/CMOS logic ICs and memories. Furthermore, it allows generation of user-definable **test pattern sequences**.
- Provides very competitive price coupled with excellent hardware design for reliable programming. Probably **the best "value for the money"** programmer in its class.
- **Very fast programming** due to high-speed FPGA driven hardware and execution of time-critical routines inside of the programmer. At least as fast as competitors in this category, for many chips much faster than most competitors. As a result, when used in production this one-socket-programmer waits for an operator, and not the other way round.
- BeeProg2 interfaces to the IBM PC compatible, portable or desktop personal computers through **USB (2.0/1.1)** port or any **standard parallel (printer) port**. Programmer can utilize power of both USB high-speed port and IEEE1284 (ECP/EPP) high-speed parallel port. Support of both USB/LPT port connection gives you the choice to connect the BeeProg programmer to any PC, from latest notebook to older desktop without USB port.
- **FPGA based** totally reconfigurable **48 powerful TTL pin-drivers** provide H/L/pull-up/pull-down and read capability for each pin of socket. Advanced pin-drivers incorporate high-quality high-speed circuitry to deliver signals without overshoot or ground bounce for all supported devices. Improved pin drivers operate down to 1.8V so you'll be ready to program the full range of today's advanced low-voltage devices.

HARDWARE

- The programmer performs device **insertion test** (wrong or backward position) and **contact check** (poor contact pin-to-socket) before it programs each device. These capabilities, supported by **over-current protection** and **signature-byte check** help prevent chip damage due to operator error.
- Built-in **protection circuits** eliminate damage of programmer and/or programmed device due to environment or operator failure. All the inputs of the BeeProg2 programmer, including the ZIF socket, connection to PC and power supply input, are **protected against ESD** up to 15kV.
- The BeeProg2 programmer performs programming **verification** at the **marginal level** of supply voltage, which, obviously, improves programming yield, and guarantees long data retention.
- Various **socket converters** are available to handle device in PLCC, JLC, SOIC, SDIP, SOP, PSOP, SSOP, TSOP, TSSOP, QFP, PQFP, TQFP, VQFP, QFN (MLF), SON, BGA, EBGA, FBGA, UPGA, FTBGA, LAP, CSP, SCSP, LQFP, MQFP, HVQFN, QLP, QIP and other packages.

SOFTWARE

- Programmer is driven by an **easy-to-use** control program with pull-down menu, hot keys and on-line help. Selecting of device is performed by its class, by manufacturer or simply by typing a fragment of vendor name and/or part number.
- **Standard device-related commands** (read, blank check, program, verify, erase) are boosted by some **test functions** (insertion test, signature-byte check), and some **special functions** (auto-increment, production mode - start immediately after insertion of chip into socket).
- All known data formats are supported. Automatic file format detection and conversion during loading of file.
- The rich-featured **auto-increment function** enables one to assign individual serial numbers to each programmed device - or simply increments a serial number, or the function enables one to read serial numbers or any programmed device identification signatures from a file.
- The software also provides a many information about programmed device. As a special, the **drawing of all available packages** are provided. The software provides also **explanation of chip labelling** (the meaning of prefixes and suffixes at the chips) for each supported chip.
- The software provides a full information for ISP implementation: Description of ISP connector pins for currently selected chip, recommended target design around in-circuit programmed chip and other necessary information.
- The **remote control** feature allows to be PG4UW software flow controlled by other application - either using .BAT file commands or using DLL file. DLL file, examples (C/PAS/VBASIC/.NET) and manual are part of standard software delivery.
- **Jam files** of JEDEC standard JESD-71 are interpreted by **Jam Player**. Jam files are generated by design software which is provided by manufacturer of respective programmable device. Chips are programmer in-ZIF or through ISP connector (IEEE 1149.1 Joint Test Action Group (JTAG) interface).
- **VME files** are interpreted by VME Player. VME file is a compressed binary variation of SVF file and contains high-level IEEE 1149.1 bus operations. SVF files are interpreted by SVF Player. SVF file (Serial Vector Format) contains high-level IEEE 1149.1 bus operations. SVF files are generated by design software which is provided by manufacturer of respective programmable device. Chips are programmer in-ZIF or through ISP connector (IEEE 1149.1 Joint Test Action Group (JTAG) interface). VME files are generated by design software which is provided by manufacturer of respective programmable device. Chips are programmer in-ZIF or through ISP connector (IEEE 1149.1 Joint Test Action Group (JTAG) interface).
- Multiple devices are possible to program and test via JTAG chain: JTAG chain (ISP-Jam) or JTAG chain (ISP-VME).
- Attaching of more BeeProg2 programmers to the same PC (through USB port) is achieved a **powerful multiprogramming system**, which **support as many chips, as are supported by BeeProg2** programmer and without obvious decreasing of programming speed. It is important to know, there is a concurrent multiprogramming - each programmer works independently and each programmer can program different chip, if necessary.

BeeProg2 technical specification

HARDWARE

Base unit, DACs

- USB 2.0 high-speed compatible port, up to 480 Mbit/s transfer rate
- FPGA based IEEE 1284 slave printer port, up to 1MB/s transfer rate
- on-board intelligence: powerful microprocessor and FPGA based state machine
- three D/A converters for VCCP, VPP1, and VPP2, controllable rise and fall time
- VCCP range 0.8V/1A • VPP1, VPP2 range 0.26V/1A • auto-calibration
- self-test capability • protection against surge and ESD on power supply input, parallel port connection
- **ZIF socket, pin driver**
- 48-pin DIL ZIF (Zero Insertion Force) socket accepts both 300/600 mil devices up to 48-pin • pin-drivers: 48 universal • VCCP/VPP1/VPP2 can be connected to each pin • perfect ground for each pin • FPGA based TTL driver provides H, L, CLK, pull-up, pull-down on all pin-driver pins • analog pin-driver output level selectable from 1.8 V up to 26V
- current limitation, over-current shutdown, power failure shutdown
- ESD protection on each pin of socket (IEC1000-4-2: 15kV air, 8kV contact)
- continuity test: each pin is tested before every programming operation

ISP connector

- 20-pin male type with miss-insertion lock • 6 TTL pin-drivers, provides H, L, CLK, pull-up, pull-down; level H selectable from 1.8V up to 5V to handle all (low-voltage including) devices. • 1x VCCP voltage (range 2V..7V/100mA), can be applied to 2 pins • programmed chip voltage (VCCP) with both source/sink capability and voltage sense • target system supply voltage (range 2V..6V/250mA)
- 1x VPP voltage (range 2V..25V/50mA), can be applied to 6 pins • ESD protection on each pin of ISP connector (IEC1000-4-2: 15kV air, 8kV contact)
- two output signals, which indicate state of work result - LED OK and LED Error (active level: min 1.8V) • input signal, switch YES! equivalent (active level: max 0.8V)

Device support

Programmer, in ZIF socket

• EPROM: NMOS/CMOS, 2708*, 27xxx and 27Cxxx series, with 8/16 bit data width, full support for LV series • EEPROM: NMOS/CMOS, 28xxx, 28Cxxx, 27EExxx series, with 8/16 bit data width • Flash EPROM: 28Fxxx, 29Cxxx, 29Fxxx, 29Bxxx, 29LVxxx, 29Wxxx, 49Fxxx series, Samsung's K8Fxxx, K8Cxxx, K8Sxxx, K8Pxxx series, from 256Kbit to 1Gbit, with 8/16 bit data width, full support for LV series • Serial E(P)ROM: Serial E(P)ROM: 11LCxxx, 24Cxxx, 24Fxxx, 25Cxxx, 59Cxxx, 85xxx, 93Cxxx, NVM3060, MDAXxxx series, full support for LV series, AT88Sxxx • Serial Flash: standard SPI (25Pxxx, 25Fxxx, 25Lxxx, 25Bxxx, 25Txxx, 25Sxxx, 25Vxxx, 25Uxxx, 25Wxxx, 45Pxxx), high performance Dual I/O SPI (25Dxxx, 25Pxxx), high performance Quad SPI (25Qxxx, 26Vxxx), DataFlash (AT45Dxxx, AT26Dxxx) • Configuration (EEPROM): XCxxx, XC17xxx, XC18Vxxx, EPCxxx, EPCSxxx, AT17xxx, AT18Fxxx, 37LVxxx • 1-Wire E(P)ROM: DS1xxx, DS2xxx • PROM: AMD, Harris, National, Philips/Synetics, Tesla, TI • NV RAM: Dallas DSxxx, SGS/Immos Mxxx, SIMTEK STxxx, XICOR-2xxx, ZMD U6xxx series • FRAM: Ramtron • MRAM: Everspin MRxxx08x • PLD Altera: MAX 3000A, MAX 7000A, MAX 7000B, MAX 7000S, MAX7000AE, MAX I/IG/Z • PLD Lattice: ispGAL22V10x, ispLS1xxx, ispLS1xxxEA, ispLS2xxx, ispLS2xxxA, ispLS2xxxE, ispLS2xxxV, ispLS2xxxVE, ispLS2xxxVL, LC4xxx/CV/ZC/ZE, M4-xx/xx, M4A3-xx/xx, M4A5-xx/xx, M4LV-xx/xx, ispCLDCK, Power Manager/II, ProcessorPM • PLD: Xilinx: XC9500, XC9500XL, XC9500XV, CoolRunner XPLA3, CoolRunner-II • other PLD: SPLD/CPDL series: AMI, Atmel, AMD-Vantis, Gould, Cypress, ICT, Lattice, NS, Philips, STM, VLSI, TI • FPGA: Actel: ProASIC3, IGL00, Fusion • FPGA: Lattice: MachX0, LatticeXP, ispXPGA • FPGA: Xilinx: Spartan-3AN • NAND FLASH: Samsung K9xxx, Hynix HY27xxx, Toshiba TC58xxx, Micron MT29Fxxx, Spansion S30Mxxx, Numonyx (ex STM) NANDxxx • LBA-NAND: Toshiba THG/Vxxx • mDCC H3: SanDisk (ex M-Systems) SDED5xxx, SDED7xxx, MD253xxx, MD2534xxx, Hynix HY23xxx • Multi-chip devices: NAND-RAM, NOR-RAM, NOR-NOR-RAM, NAND-NOR-RAM • Clocks: TI(TMS), Cypress • Special chips: Atmel Tire Pressure Monitoring ATA6285N, ATA6286N, PWM controllers: Zilker Labs, Analog Devices, Gamma buffers: TI, Maxim ...

• MCU 48 series: 87x41, 87x42, 87x48, 87x49, 87x50 series • MCU 51 series: 87xx, 87Cxxx, 87LVxx, 89Cxxx, 89Sxxx, 89Fxxx, 89LVxxx, 89LSxxx, 89LPxxx, 89Exxx, 89Lxxx, all manufacturers, Philips LPC series • MCU Intel 196 series: 87C196 KB/KC/KD/KT/KR/... • MCU Atmel ARM: ARM7: AT91SAM7xxx, AT91SAM7xxx, AT91SAM7Cxx, AT91SAM7Sxx series; ARM9: AT91SAM9xxx series; ARM Cortex-M3: AT91SAM3Uxxx series • MCU Atmel AVR 8bit/16bit: AT90Sxxx, AT90Pwm, AT90can, AT90usb, ATtiny, ATmega, ATmega series • MCU Atmel AVR32: AT32UC3xxx • MCU Chipcon (TI): CC11xx, CC24xx, CC25xx series • MCU Coreriver: Atom 1.0, 2.0, 2.1, 2.2, 3.0 series • MCU Cypress: CY7Cxxx, CY8Cxxx • MCU ELAN: EM78Pxxx • MCU Infineon(Siemens): XC800, C500, X166, C166 series • MCU MDT 1xxx and 2xxx series • MCU Microchip PICmicro: PIC10xxx, PIC12xxx, PIC16xxx, PIC17Cxxx, PIC18xxx, PIC24xxx, dsPIC, PIC32xxx series • MCU Motorola/Freescale: HC05, HC08, HC11, HC12, HCS08, RS08, S12, S12X, MC56F, MCF51, MCF52 series • MCU Myson MTV2xx, 3xx, 4xx, 5xx, CS89xx series • MCU National: COP8xxx series • MCU NEC: uPD70Fxxx, uPD78Fxxx series • MCU Novatek: NT68xxx series • MCU Nuvoton (Winbond): N79xxx, W77xxx, W78xxx, W79xxx, W83xxx series • MCU NXP ARM Cortex-M3: LPC13xx, LPC11xx series • MCU Philips (NXP) UOC series: UOC11, UOC-TOP, UOC-Fighter series • MCU Philips (NXP) ARM7: PCD807xx, SAFF780xxx series • MCU Scenix (Ubicom): SXxxx series • MCU Renesas: R8C/Tiny series • MCU SGS-Thomson: ST6xx, ST7xx, ST10xx, STR7xx series • MCU SynMOS: SM59xxx, SM73xxx, SM79xxx, SM89xxx series • MCU & Programmable System Memory STMicroelectronics: uPSD, PSD series • MCU STM: ST6xx, ST7xx, ST10xx, STR7xx, STR9xx, STM32Fxx, STM8A/S/L series • MCU Silicon Laboratories(Cygnal): C8051 series • MCU Texas Instruments: MSP430, MSP430xxx series, TMS320F series • MCU Texas Instruments (ex Luminary Micro): LM3Sxxx, LM3Sxxx series • MCU ZILOG: Z86/Z89xxx and Z8Fxxx, Z8FMCxxx, Z16Fxxx, ZGP323xxxxxx, ZLF645xxxxxx, ZLP12840xxxx, ZLP323xxxxxxx series • MCU other: EM Microelectronic, Fujitsu, Goal Semiconductor, Hitachi, Holtek, Novatek, Macronix, Princeton, Winbond, Samsung, Toshiba, Mitsubishi, Realtek, M-Square, ASP, Coreriver, Gencore, EXODUS Microelectronic, Megawin, Syntek, Topro, TinyARM, VersaChips, SunplusIT, Nordic, M-Square, QIXIN, Signetic, Tekmars, Wtrentend, Amic, Cyrod Technologies, Ember, Ramtron, Nordic Semiconductor, Samsung ...

Programmer, through ISP connector

- Serial E(P)ROM: IIC series, MW series, SPI series, KEELQ series, PLD configuration memories, UNi/O series • 1-Wire E(P)ROM: DS1xxx, DS2xxx
- Serial Flash: standard SPI (25xxx), DataFlash (AT45Dxxx, AT26Dxxx) • MCU Atmel: AT89Sxxx, AT90Pwm, AT90can, AT90usb, AT90Sxxx, ATtiny, ATmega, ATmega, AT89Lxxx, AT89Lxxx • MCU Atmel AVR32: AT32UC3xxx • MCU Chipcon (TI): CC11xx, CC24xx, CC25xx series • MCU Cypress: CY8C2xxx
- MCU Elan: EM78Pxxx, EM6xxx series • MCU EM Microelectronic: 4 and 8 bit series • MCU Microchip PICmicro: PIC10xxx, PIC12xxx, PIC16xxx, PIC17xxx, PIC18xxx, PIC24xxx, dsPIC, PIC32xxx series • MCU Mitsubishi: M160 • MCU Motorola/Freescale: HC08 (both 5-wire, All-wire), HC11, HC12, HCS08, S12,

S12X, MC56F, MCF52 series • MCU Nordic Semiconductor: nRF24xxx • MCU NEC: uPD7xxx series • MCU Philips (NXP): LPC1xxx, LPC2xxx, LPCxxx series, 89xxx series • MCU Renesas: R8C/Tiny series • MCU Realtek, M-Square • MCU Scenix (Ubicom): SXxxx series • MCU STM: ST7xxx, STR7xx, STR9xx, STM32Fxx, STM8A/S/L series • MCU Silicon Laboratories(Cygnal): C8051 series • MCU & Programmable System Memory STMicroelectronics: uPSD, PSD series • MCU TI: MSP430 (both JTAG and BSL series), MSP430xxx series • MCU ZILOG: Z8Fxxx, Z8FMCxxx, Z16Fxxx series, ZLF645xxx • Various PLD (also by Jam/VME/SVF/STAPL/... Player/JTAG support): Altera: MAX 3000A, MAX 7000A, MAX 7000B, MAX 7000S, MAX 7000AE, MAX I/IG/Z Xilinx: XC9500, XC9500XL, XC9500XV, CoolRunner XPLA3, CoolRunner-II • PLD Lattice: ispGAL22V10x, ispLS1xxxEA, ispLS2xxxE, ispLS2xxxV, ispLS2xxxVE, ispLS2xxxVL, M4-xx/xx, M4LV-xx/xx, M4A3-xx/xx, M4A5-xx/xx, LC4xxx/CV/ZC/ZE, ispCLOCK, Power Manager/II, ProcessorPM • FPGA: Actel: ProASIC3, IGL00, Fusion- FPGA: Lattice: MachX0, LatticeXP, ispXPGA
- Notes: - devices marked * are obsolete, programming with additional module - for all supported devices see actual DEVICE LIST at www.elnec.com

I.C. Tester

- TTL type: 54,74 S/LS/ALS/H/HC/HCT series
- CMOS type: 4000, 4500 series • Static RAM: 6116 ... 624000
- User definable test pattern generation
- **Package support**
- support all devices in DIP with default socket
- package support includes DIP, SDIP, PLCC, JLC, SOIC, SOP, PSOP, SSOP, TSOP, TSSOP, QFP, PQFP, TQFP, VQFP, QFN (MLF), SON, BGA, EBGA, FBGA, VFBGA, UPGA, FTBGA, LAP, CSP, SCSP etc.
- support devices in non-DIP packages up to 48 pins for universal adapters • programmer is compatible with third-party adapters for non-DIP support

SOFTWARE

- **Algorithms:** only manufacturer approved or certified algorithms are used. Custom algorithms are available at additional cost.
- **Algorithm updates:** software updates are available approx. every 2 weeks, free of charge. OnDemand version of software is available for highly needed chips support and/or bugs fixes. Available nearly daily.
- **Main features:** revision history, session logging, on-line help, device and algorithm information.

Device operations

- standard:
 - intelligent device selection by device type, manufacturer or typed fragment of part name
 - automatic ID-based selection of EPROM/Flash EPROM • blank check, read, verify • program • erase • configuration and security bit program
 - illegal bit test • checksum • interpret the Jam Standard Test and Programming Language (STAPL), JEDEC standard JESD-71 • interpret the VME files compressed binary variation of SVF files • interpret the SVF files (Serial Vector Format) • interpret the Actel STAPL Player files
- security
 - insertion test, reverse insertion check • contact check • ID byte check
- special
 - production mode (automatic start immediately after device insertion)
 - multi-project mode • lot of serialization modes (more type of incremental modes, from-file mode, custom generator mode)
 - statistic • count-down mode

Buffer operations

- view/edit, find/replace • fill/copy, move, byte swap, word/dword split
- checksum (byte, word) • print

File load/save

- no download time because programmer is PC controlled
- automatic file type identification
- **Supported file formats**
- unformatted (raw) binary
- HEX: Intel, Intel Ext, Motorola S-record, MOS, Exormax, Tektronix, ASCII-SPACE-HEX, ASCII-HEX
- Altera POF, JEDEC (ver. 3.0A), eg. from ABEL, CUPL, PALASM, TANGO PLD, OrCAD PLD, PLD Designer ISDATA, etc.
- JAM (JEDEC STAPL Format), JBC (Jam STAPL Byte Code), STAPL (STAPL File) JEDEC standard JESD-71
- VME (ispVME file VME2.0/VME3.0) • STP (Actel STAPL file)
- SVF (Serial Vector Format revision E) • STP (Actel STAPL file)

GENERAL

Recommended PC system requirements

- Microsoft Windows® XP
- PC Pentium 4, 2 GHz
- 512 MB of RAM • 150 MB of free disk space • CDROM drive
- either one USB port, 2.0 compatible or
- one (parallel) printer port with nothing attached, the IEEE 1284 compatible printer port (ECP/EPP) on PCI bus recommended
- **Operation**
- operating voltage: 110-240VAC 50/60Hz
- power consumption: max. 20W active, about 2W sleep
- dimensions: 195x140x55 mm (7.7x5.5x2.2 inch) • weight: 0.9kg (1.98 lb)
- temperature: 5°C ~ 40°C (41°F ~ 104°F)
- humidity: 20%..80%, non condensing

Part No.	Description
60-0052	BeeProg2

Local dealer:



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