

# MikroElektronika EasyPIC5 Development System

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Out of Belgrade comes a vast line of microcontroller development tools and related goodies that's sure to make microcontroller geeks drool and students and other beginners start examining their wallets, savings or budgets — the prices sure are attractive! We examined EasyPIC5, one of the flagship dev kits from MikroElektronika.



Many moons ago, development systems for microcontrollers were supplied by none other than ... the manufacturers of the relevant devices. Alas, these kits were expensive or hard to come by if you were not a journalist/reviewer or a manager commanding 20 or more staff in the product design department. Also, in the early days, manufacturer-specific dev kits, although comprehensive and with technically fine contents, would give you an uneasy feeling of being chained to, again, the microcontroller manufacturer for support and hardware extensions ("sure, that can be done with our product xyz, I'll connect you to sales...").

Today, that's changed a lot and anyone with a reasonably defined target for hardware product development, or an educational interest, should be able to buy microcontroller development systems that can be relied on to give a head start. Although prices generally have come down, the link to the device manufacturer seems inevitable. Or is it?

## Unpacking

The EasyPIC5 box is compact yet sturdy and in general shows good packaging standards applied. The board, measuring 25×21 cms and having rounded corners, struck me as well laid out and extremely solid (it's 3 mm thick). It has lots of useful markings on the silkscreen overlay and, remarkably in this day and age, no SMD parts except one voltage regulator. The general finish of the board is superb — no hand-soldered wires or knifed PCB tracks revealing design errors a.k.a. 'h/w revisions'. A pity, though, some of the jumper setting instructions are obscured when the graphic LCD (GLCD) is installed on the board.

The review board came with the 2×16 character LCD and DS1820 temperature sensor in a separate package — this is an optional add-on costing \$15 extra. MikroElektronika sell a variety of optional add-ons for the board, including a touchpanel and a 128×64 pixel graphic LCD. At \$24 and \$7 respectively these items are good value for money and it seems wise to order them straight away with the EasyPIC5. Other add-ons include CAN, SmartMP3, RS485, Ethernet and IrDA. A remarkable built-in feature of the

board is called MikroICD. This in-circuit debugger allows you to monitor (on your PC), the state of all registers inside the MPU while it executes object code. The associated PC software called PICFlash2 is a free download as well as supplied on CD.

Besides the EasyPIC5 User Manual, the box also contains 'hard copy' i.e. printed documentation of the PICFlash2 and mikroICD utilities — a rare find in this day and age of CD-ROMs and Internet. All printed matter is bright, copiously illustrated and has a consistent layout and use of colours, from the Quick Start leaflet right up to the print on the CD-ROM.

## EasyPIC5 overview

Despite claims in favour of competing devices, Microchip PIC microcontrollers have a leading position in terms

of EasyPIC5 may be found on the CD in the kit.

## POS and NEG

My only criticism of the EasyPIC5 kit proper is that the 2x16 LCD and the DS1820 should have been included in the package instead of supplied as an option at \$15 extra. These add-ons make for a lively start for first time users like myself. I took the DS1820 temperature sensor project as my first attempt to use the board and it was up and running in less than half an hour, including a short experiment with the MikroICD feature.

The kit and the software tools supplied succeed in freeing your mind from hardware intricacies and instead concentrating on software and understanding and optimising the PIC code (in that order). For example, using

MikroBasic it wasn't too much trouble to program three temperature levels at which PIC output lines are activated. When I got the hang of it, cheerfully debugging an

associated indication using the 7-segment LED display, I was told to stop and finish this review.

At \$129 (plus P&P and options) and the dollar in the toilet at the time of writing, EasyPIC5 is good value for money. A wide distributor network is available as well as support, both directly from MikroElektronika themselves and from knowledgeable users in their online Forum, where critical users are not shunned either and all the latest on updates etc. can be found. Further encouraging points to mention are the neatly produced manuals, the non-SMD approach, the wide range of low-cost add-on boards, and a fine selection of get-you-going examples. Users will also appreciate the trial versions of MikroC, MikroPascal and MikroBasic on the CD with the kit. Registration keys for these compilers can be obtained online from MikroElektronika.

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## Web Links

**MikroElektronika:** [www.mikroe.com](http://www.mikroe.com)

**UK distributor:** [www.paltronix.com](http://www.paltronix.com)

**US distributor:** [www.circuit-ed.com](http://www.circuit-ed.com)

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of acceptance among not only enthusiasts and students, but also seasoned workers in the embedded industry. At the heart of the EasyPIC5 board sits a PIC16F877 in its 40-way DIP case. However you can remove it — besides the DIP40 socket, DIP20, DIP18, DIP14 and DIP8 sockets are available on the board to take PICs with fewer pins. The EasyPIC5 documentation tells you which are suitable.

I/O-wise the PIC is totally accessible with all its ports bonded not only to connectors and DIP switch arrays but also LEDs for easy visualisation of logic states as you program along (and make errors!). Input to the digital ports is easy to simulate by means of 36 pushbuttons labelled with port line names. The analogue world is not forgotten either with PIC pins RA0-R5 on pinheaders and two potentiometers on the board to simulate discrete analogue levels between 0 and 5 V.

For higher level connectivity, the board has RS232, PS/2, USB and a 4-digit 7-segment display, not forgetting the USB comprised in the MikroICD of course.

Hardware fans will like to know that the complete schematic and board lay-