

FLOWCODE

Electronic system design software



MATRIX

WHAT IS FLOWCODE?

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Flowcode software allows you to develop complex electronic and electromechanical systems with ease.

Flowcode software allows you to quickly and easily develop complex electronic and electromechanical systems. The graphical programming tool allows even those with little experience to develop complex electronic systems in minutes.

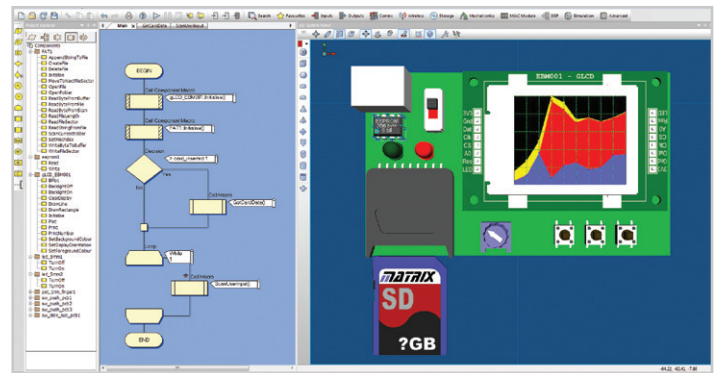
Flowcode is one of the world's most advanced environments for electronic and electromechanical system development. Engineers use Flowcode to develop systems for control and measurement based on microcontrollers, on rugged industrial interfaces or on Windows compatible personal computers.

A 2D and 3D graphical development interface allows students to construct a complete electronic system on-screen, develop a program based on standard flowcharts, simulate the system and then produce hex code for PICmicro® microcontrollers, dsPIC and PIC24 microcontrollers, AVR and Arduino microcontrollers, and ARM microcontrollers.

Flowcode version 6 has a number of new developments which come together to create a software package which is amongst the best of its kind in the world. Flowcode is aimed at the 16+ market.

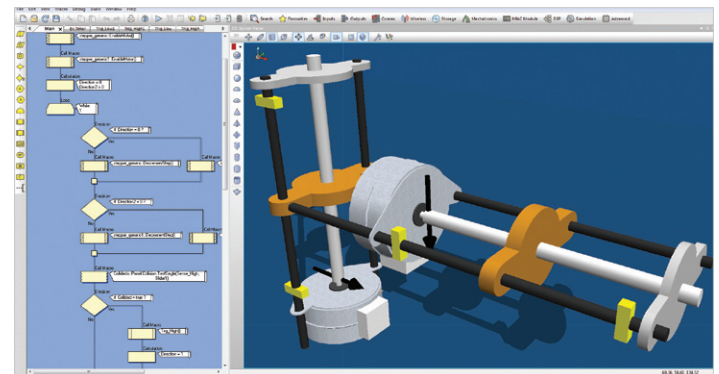
Development of Flowcode SE has now also given the ability for those aged 14-16 to learn about the development of complex electronic and electromechanical systems. See more on page 87.

Flowcode is available in around 20 languages and is used by thousands of engineers and educators.



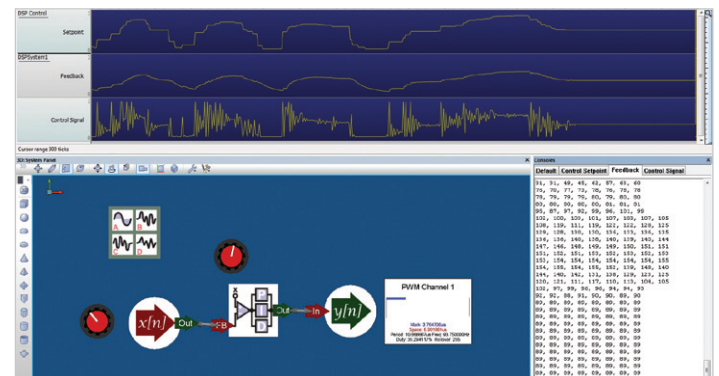
Improved simulation:

Flowcode V6 has improved its simulation, making system design easier and faster.



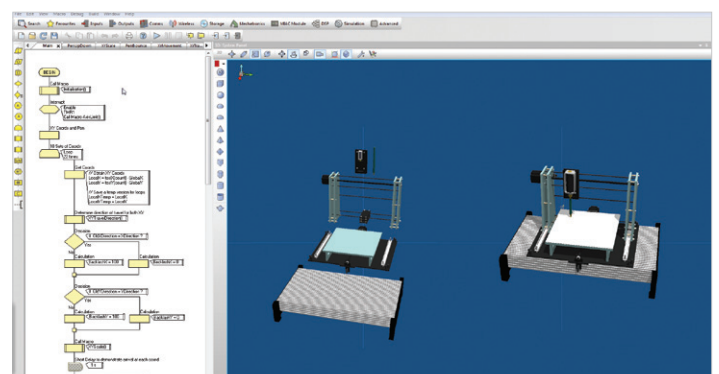
3D graphics engine:

Extend your design to include electromechanical components and systems.



New test features:

The new test features in Flowcode V6 allow users to verify and record a system under test.



Component creation:

Users can create their own components for more realistic system design and simulation.

Based on flowcharts - minimal programming experience is required.

Open architecture - all aspects of Flowcode are fully customisable for your projects.

Fully supported - with online tutorials, documentation and an active online community.

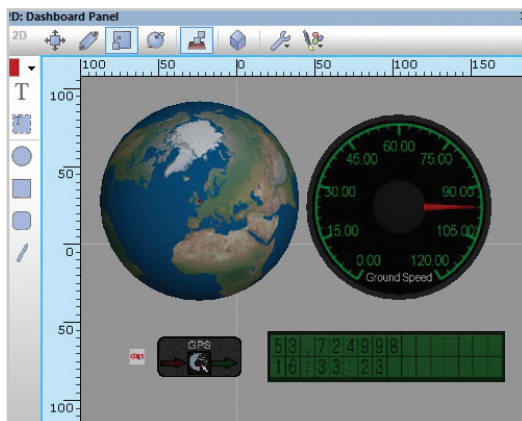
Transfer your design - easily between Windows, PICmicro, AVR, Arduino and ARM.

ADVANTAGES OF USING FLOWCODE

Flowcode software is based on standard flowchart symbols. Flowchart icons can be compiled to a microcontroller and can be executed on a Windows PC. The PC-side software in Flowcode includes a full suite of Windows commands for mathematics, controlling graphics on the monitor, communications via Ethernet etc. In fact Flowcode 6 now includes a full Windows programming language as well as a microcontroller compiler.

This PC-side and chip-side functionality makes Flowcode really powerful:

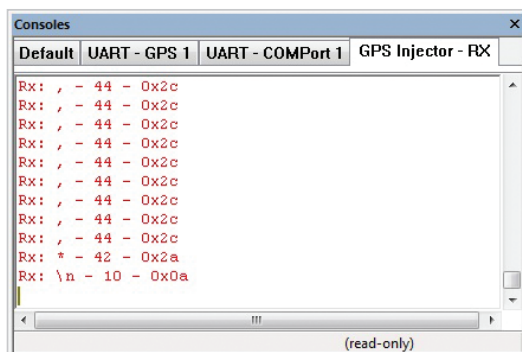
- Complex systems can be designed and simulated before chip-side compilation which saves design time.
- In-Circuit-Test data can be linked to simulations to show system performance at run-time which proves designs function properly.
- Programs can be deployed on a microcontroller or a Windows PC.



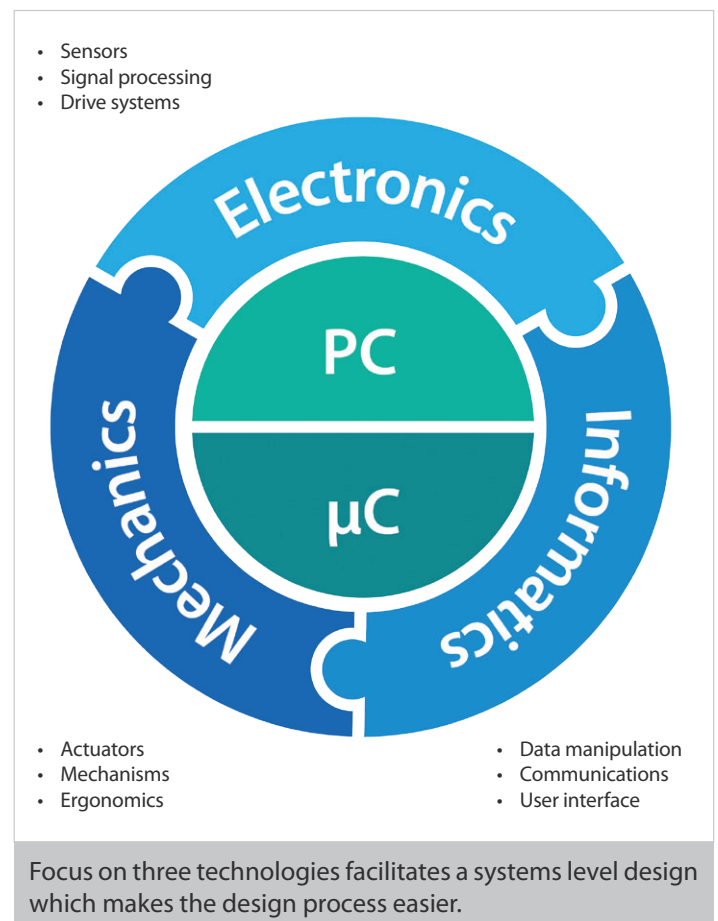
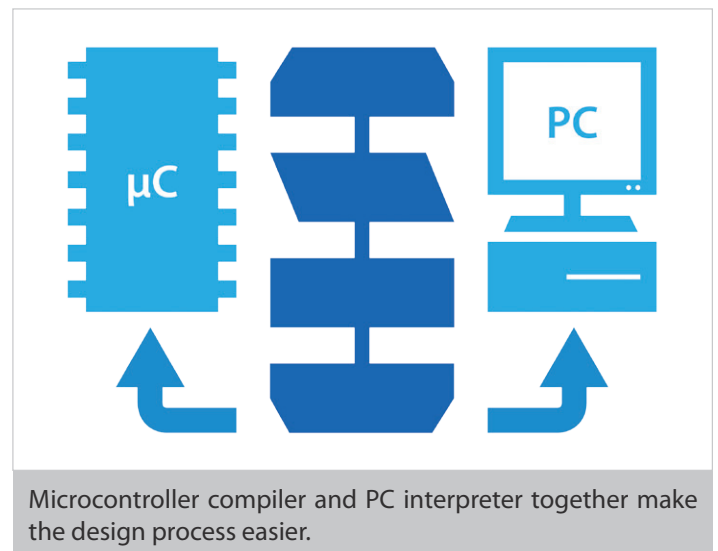
For example: GPS data from microcontroller In-Circuit-Test is processed by PC-side software into a human friendly format so that system design can be verified.

Flowcode's PC-side and chip-side features focus on Electronics, Informatics and Mechanics which give Flowcode several advantages over other microcontroller compilers:

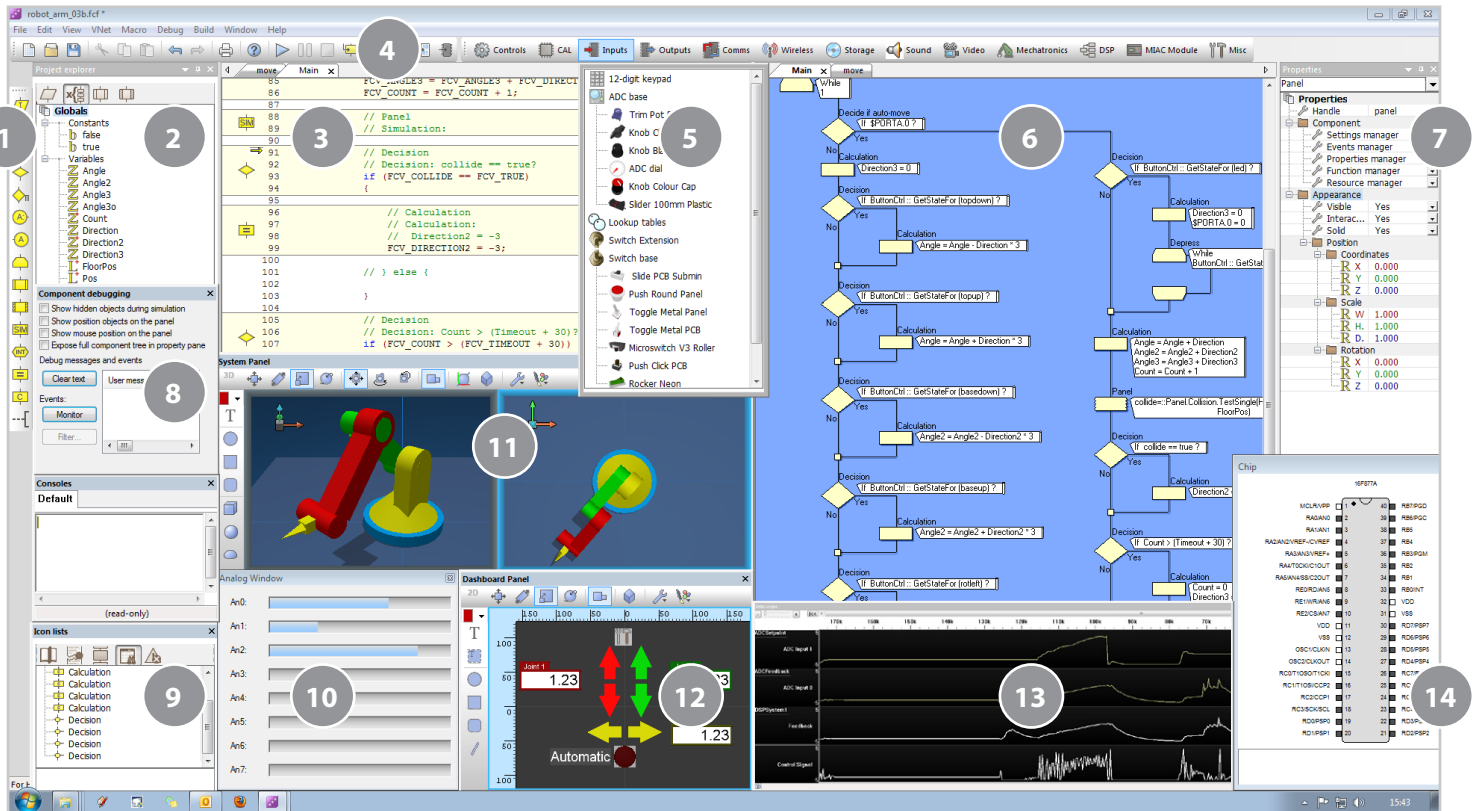
- Program design takes place at a system level rather than at a chip level.
- Program design time is shortened and made easier.
- Programs for microcontrollers can be linked to PC side data files during design time.
- Data decoding algorithms can be tested at the same time as control programs are developed.



For example: During the design phase mock streams of serial digital data can be injected into a simulation so that decoding algorithms can be tested before compilation to chip.



FLOWCODE OVERVIEW



1 Icon tool bar - drag and drop standard flowchart icons onto your flowchart. Click to edit properties for a syntax-correct program

2 Project explorer - instantly see all the ports, macros, variables, constants and components in your project.

3 C code program - monitor the C code equivalent of your flowchart; as fast, syntax correct code is generated automatically on a per icon basis.

4 Control tool bar - use the standard tool bar for editing your program and also for stimulating your program and running In-Circuit-Debug / Test.

5 Component tool bar - choose your electromechanical component from our large library of parts; from simple switch to Bluetooth module.

6 Flowchart program - drag, drop and edit standard flowchart icons to create a program. Design flowchart macros that can be called from other icons. Use Flowcode's powerful PC-side language to control external instruments, and monitor your systems

7 Properties editor - see and edit the properties of all components.

8 Component debug - see the API calls in your program and component design.

9 Icon list window - for search results, error messages, breakpoints and bookmarks.

10 Analogue window - see the state of the analogue inputs in your design.

11 System panel - design your system using the multi-view system panel. Use off-the-shelf electromechanical components or design your own. Import your model from a program like Sketchup or Solidworks.

12 Dashboard panel - control and monitor your program in simulation and In-Circuit-Test. Write programs using simulation API commands to show real world equivalents of your data in human-friendly formats.

13 Scope window - use the scope window to show time-varying signals in your system. Link the scope to simulation data or real data during In-Circuit-test.

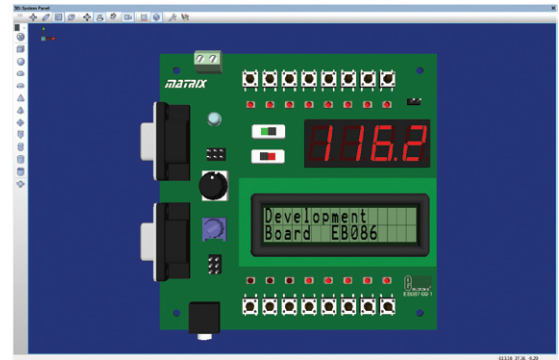
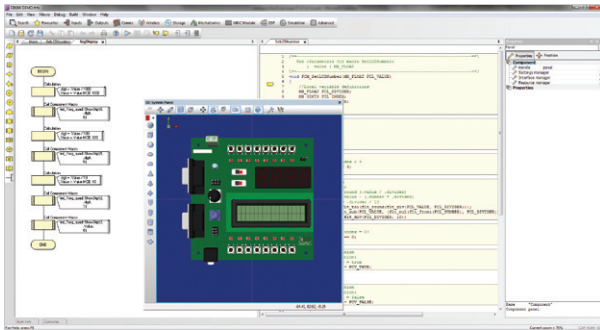
14 Chip - use the chip window to view and control the status of the inputs and outputs on your chip in simulation and In-Circuit-Test.

FLOWCODE DESIGN FLOW

DESIGN

SIMULATE

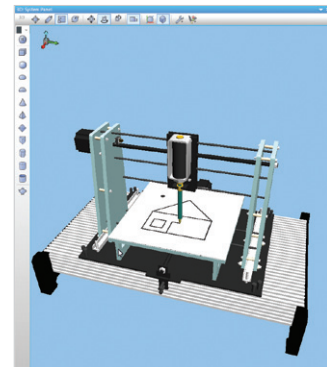
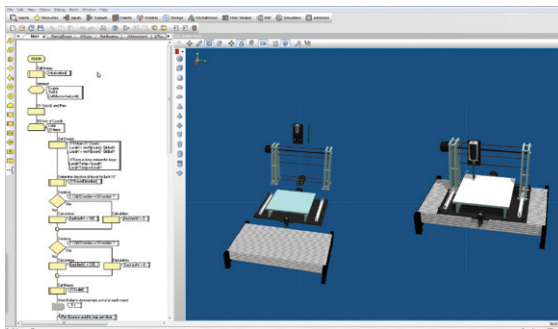
Circuit level.



Design a virtual circuit board with PCB level components that connect to a virtual microcontroller and develop the program using flowcharts.

Simulate the program and circuit board components to check function using LEDs, displays to see function and interacting with virtual switches to control the system.

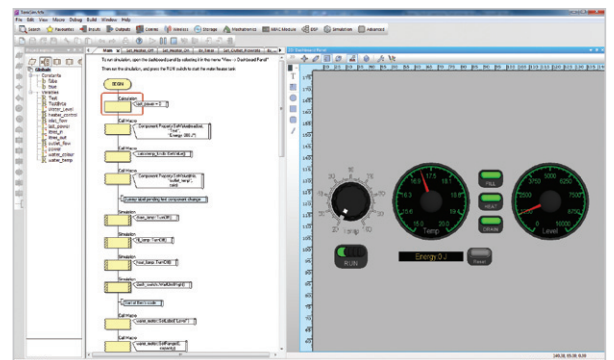
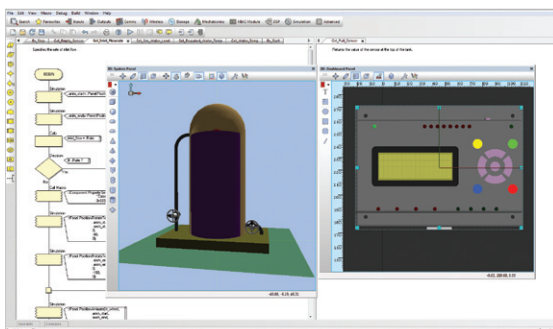
Electromechanical level.



Develop a mechanical system in Solidworks and characterise it for Flowcode. Develop a flowchart program for control and operational data conditioning.

Simulate the mechanical system, the electronic system and the data decoding algorithms all in one package.

Systems level.



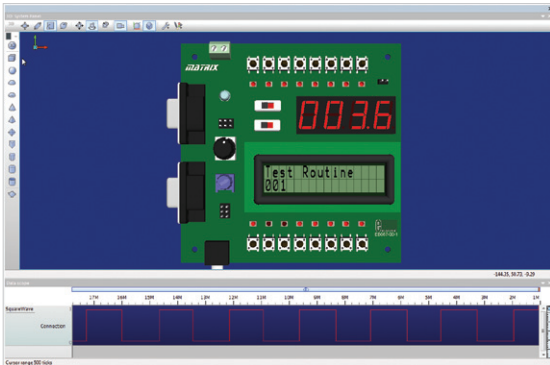
Develop a mathematical and/or physical model of your system, and develop a flowchart control program using Flowcode.

Use Flowcode Dashboard objects to simulate system performance in human friendly graphical format.

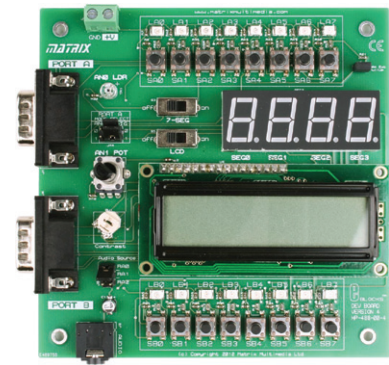
FLOWCODE DESIGN FLOW

TEST

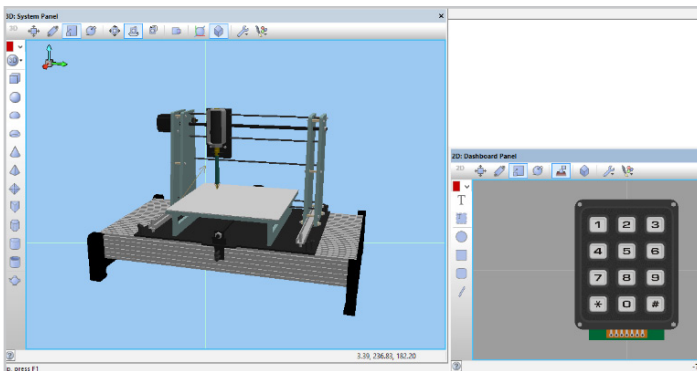
DEPLOY



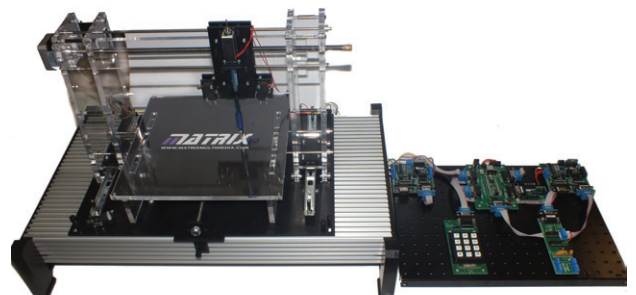
Download to the microcontroller in the E-blocks development system and use In-Circuit-Test and Softscope feature to verify operation at pin level.



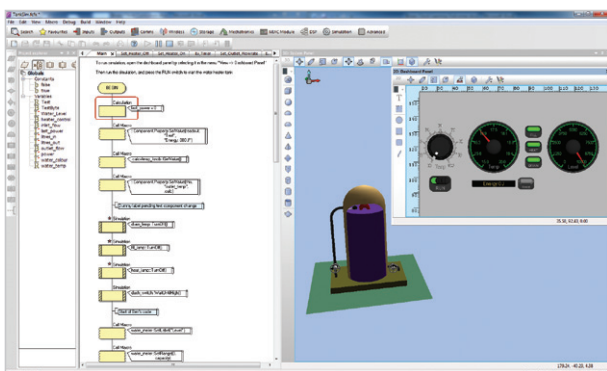
Develop the final circuit board and release to market.



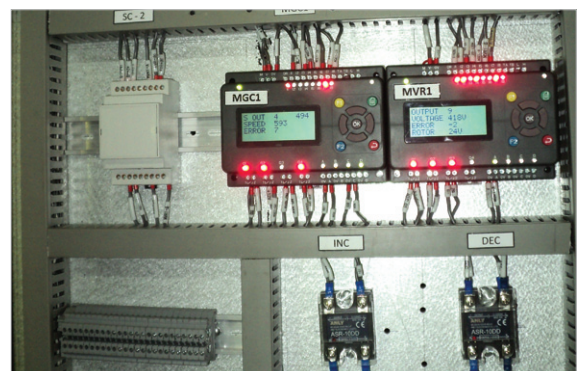
Use In-Circuit-Test to test and debug at a pin level.



Develop the final product, verify operation and release to market.



Link Dashboard objects, Softscope and Console to third party instruments using DLLs in SCADA fashion to verify performance in real time.



Deploy your system in a control system based on microcontrollers, MIAC controller or Windows PC linked to third party controllers using DLLs.

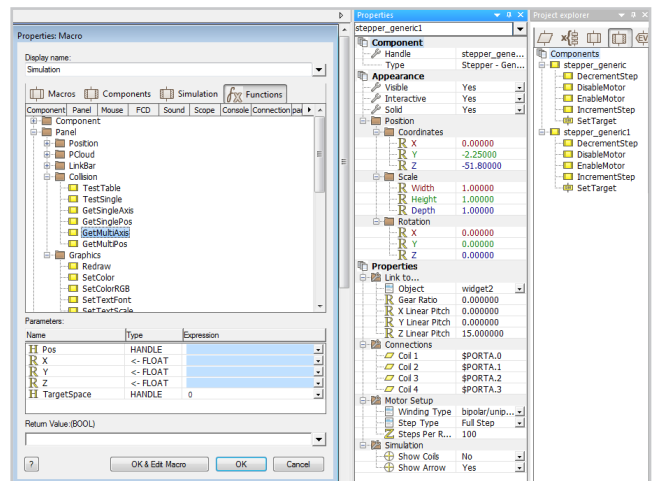
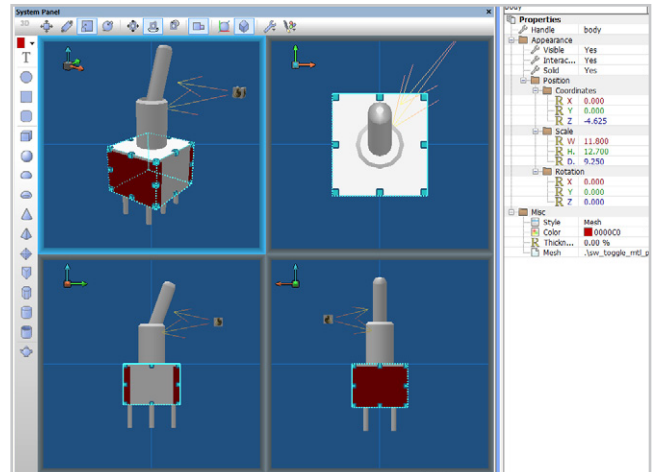
KEY FEATURES OF FLOWCODE 6

Create your own components - now you can design your own electronic components and add them to your component library. You can use simulation API calls to define the electrical behaviour and mechanical behaviour in simulation.

Component library expansion - the component library has been expanded considerably to include many new electronic components and simulation components. Components can be design and shared on our website.

System components - in addition to PCB style components you now have access to panel mounted switches, meters and siplays for industrial control.

Dashboard HMI components - customise or create Dashboard components like graphs, dials and meters to allow you to monitor how your system is functioning in simulation and In-Circuit-Test.

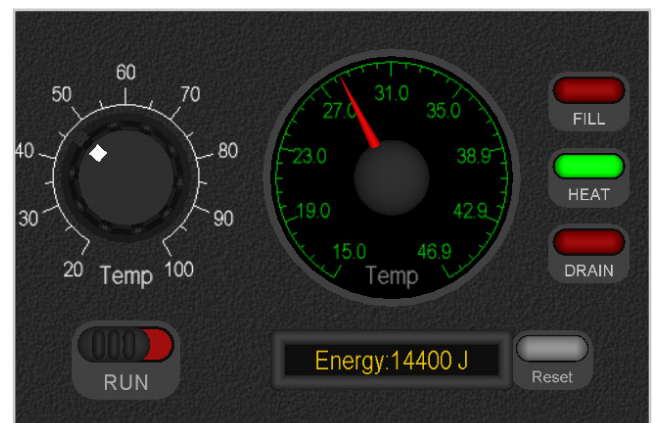


Close to real time simulation - improvements in simulation speed means that your simulation works close to real time which allows you to verify your design 'live'.

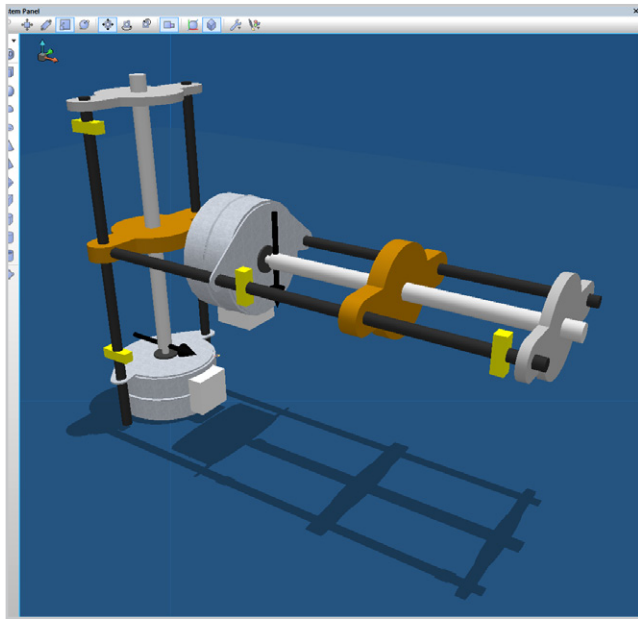
API (Application Programming Interface) - the powerful API allows control of simulation events and components providing a wide range of PC-side functions.

Dashboard HMIs - Human Machine interface components show your system during simulation and In-Circuit-Test using intuitive displays including meters, graphs, oscillograms and tables.

Consoles - use text based consoles to see data passing around your system: perfect for designing systems with digital communications.



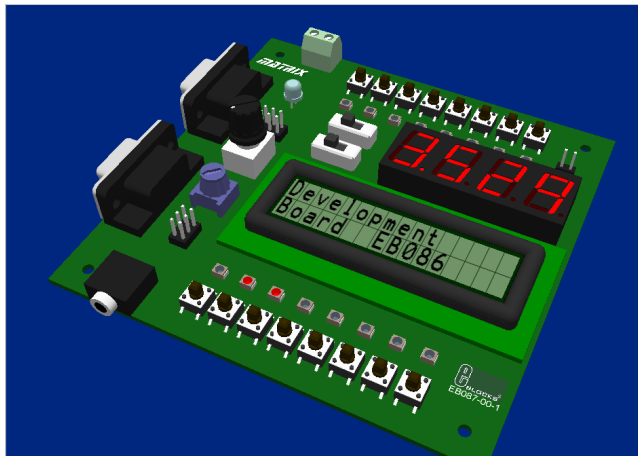
NEW IN VERSION 6



Electromechanical system creation - create simulations of your model which move in 3D space under electrical stimulus from a microcontroller and other components in your system. Use 2D dashboard controls to monitor your system in real time.

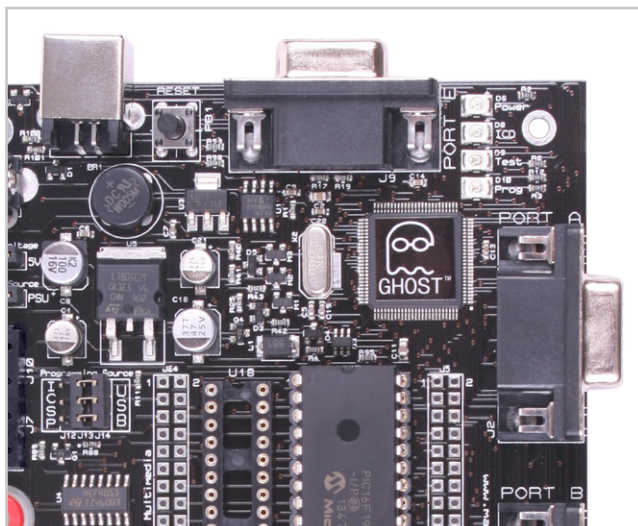
System panel - use the system panel to design your own simple 3D model. View your design from different angles whilst it simulates.

Laser cutters and 3D printers - create low cost parts with laser cutters and 3D printers and see the parts working with your electronics on-screen.



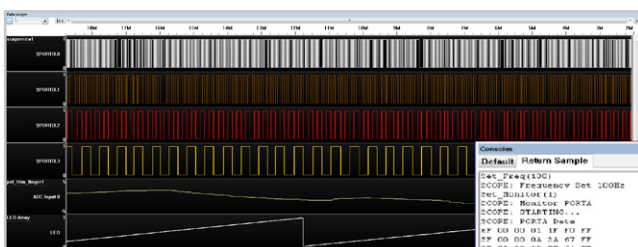
3D design environment - import 3D models and characterise the movement and simulation using API.

Third party instrument support - access readings and data from external instruments using DLL support. Display data with dashboard HMI or third party software.



Tight E-blocks integration - use our new EB006 V9 multiprogrammer to monitor every pin on your PICmicro design and monitor and interpret serial data I/O using the brand new Ghost Technology.

Dashboard HMI - monitor how your system is functioning in simulation and In-Circuit-Test. Use new components like graphs, meters, consoles and scrolling text boxes to verify your design.



Softscope and Consoles - use Softscope and Consoles to see data in waveform or textual formats. Use the API to translate incoming data to hex or ASCII equivalent. Link Softscope and Consoles to third party hardware using DLLs to create a full SCADA system.



Ghost is a PC-side technology which, when combined with Flowcode, provides a new way of debugging electronic systems.

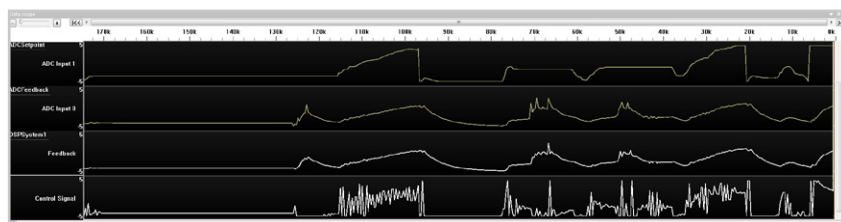
Ghost technology provides a real time log of the status of all the pins on the microcontroller whilst a Flowcode program is running on the device. Ghost data can be viewed on the Flowcode Softscope at the same time as the flow chart simulation. You can run, pause, and step through, your program and view real-time data at the same time and view variables, registers and other memory locations. We call this 'In-Circuit-Test'.

When this data is combined with the PC-side processing capabilities of Flowcode it provides a very powerful debugging and learning tool. As an example of this the 5 steps on the right show how a stream of GPS digital data is gathered from the E-blocks system and processed into layers of meaningful information to help the design process.

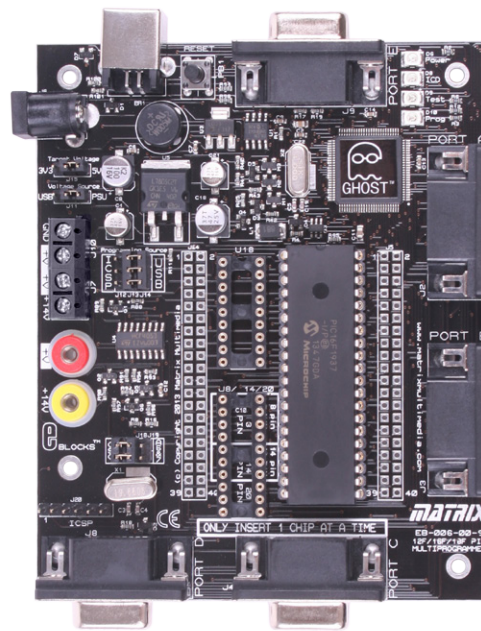
This saves huge amounts of development time - whether you are working at a pin level and getting your first program to work, or whether you are an advanced user wanting to perform a sanity check to make sure communications baud rates are set at the correct speed.

Both analogue and digital data is gathered through Ghost and displayed on the Flowcode Softscope. For communications busses decoding overlays for SPI, I2C, and other comms standards are available. Ghost data can also be passed to simulation/SCADA components in Flowcode to provide Human Machine Interface style debug features.

Ghost is watching you!

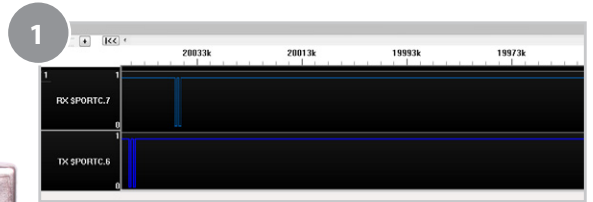


Analogue pin data from a PID control system based on E-blocks is gathered by Ghost and displayed on the Flowcode Softscope.

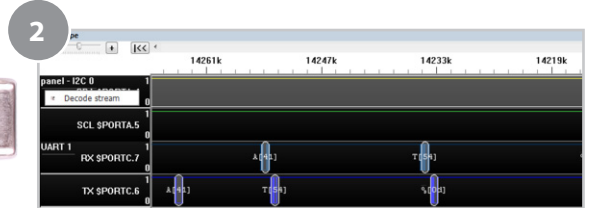


The Ghost chip on our new EB006 PICmicro Multiprogrammer enables advanced In-Circuit-Debug features.

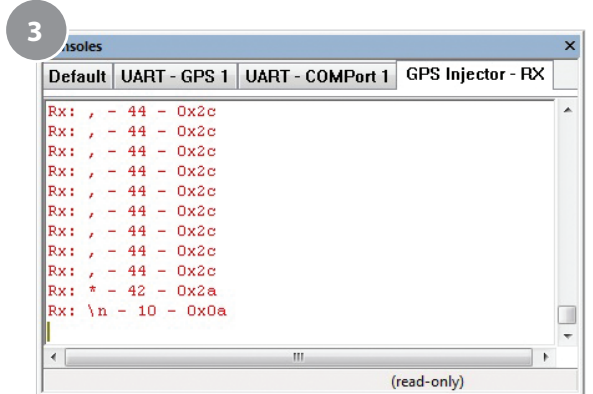
GHOST TECHNOLOGY



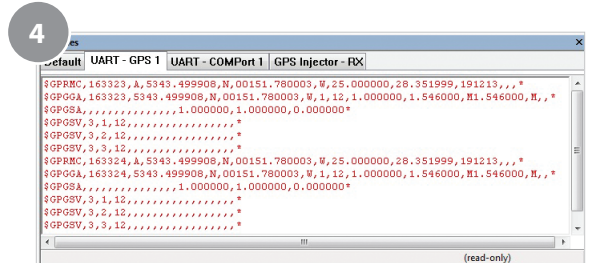
Real-time pin data is logged via USB and displayed on the Flowcode Softscope window...



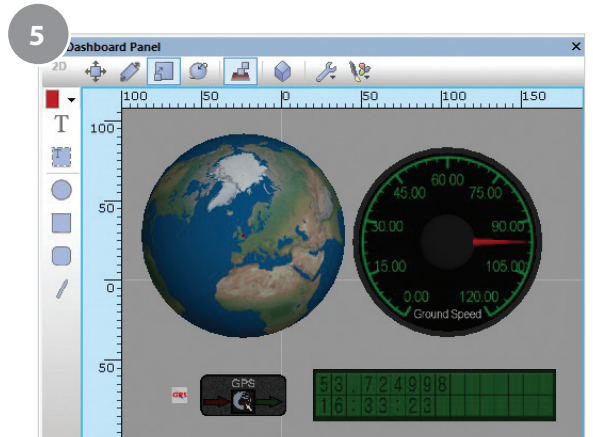
...an PC overlay is put on top of the trace by PC-side functions, so you can see the ASCII datastream...



...the Flowcode console displays incoming low level ASCII data on the input tab...



...which is decoded to high level data and displayed on the GPS tab...



...a Flowcode component, powered by PC-side software, transforms the data to show World position, location and speed of movement in human friendly format.

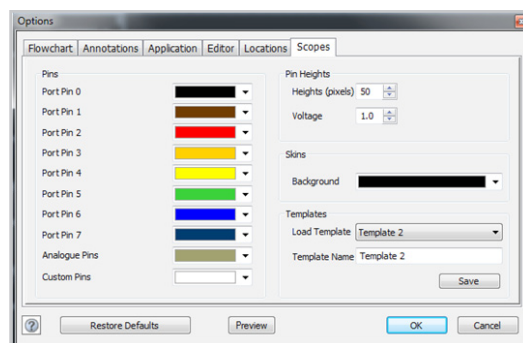
GHOST TECHNOLOGY

Improved Flowcode Data Scope.

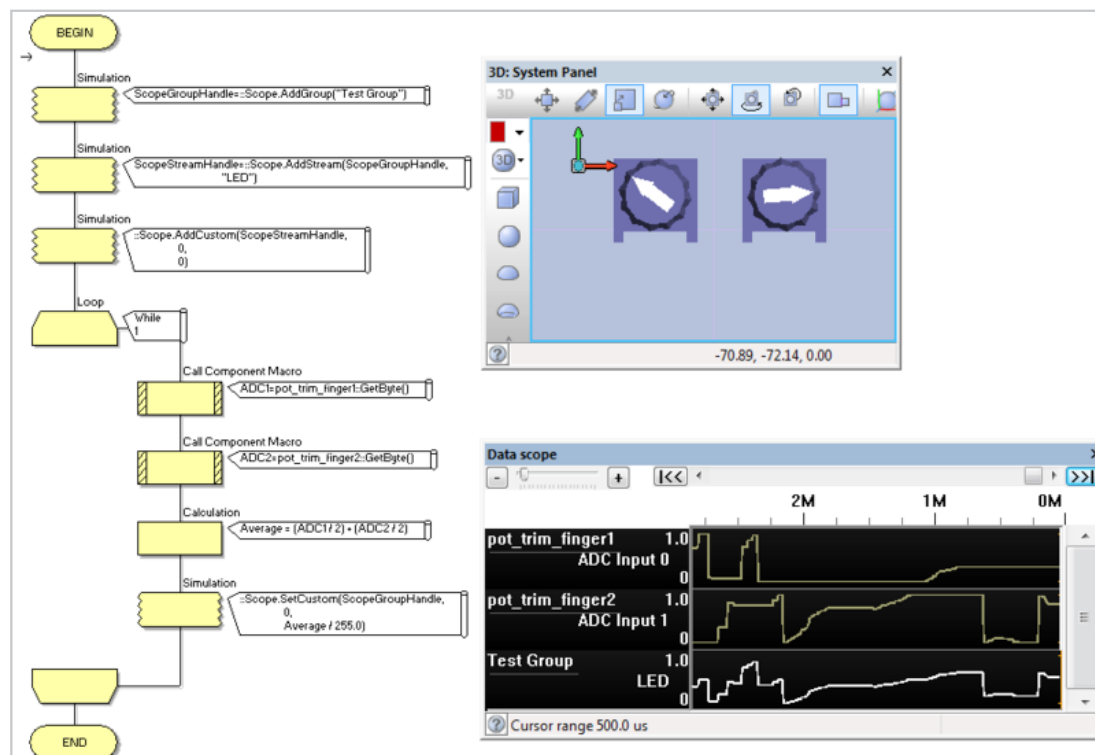
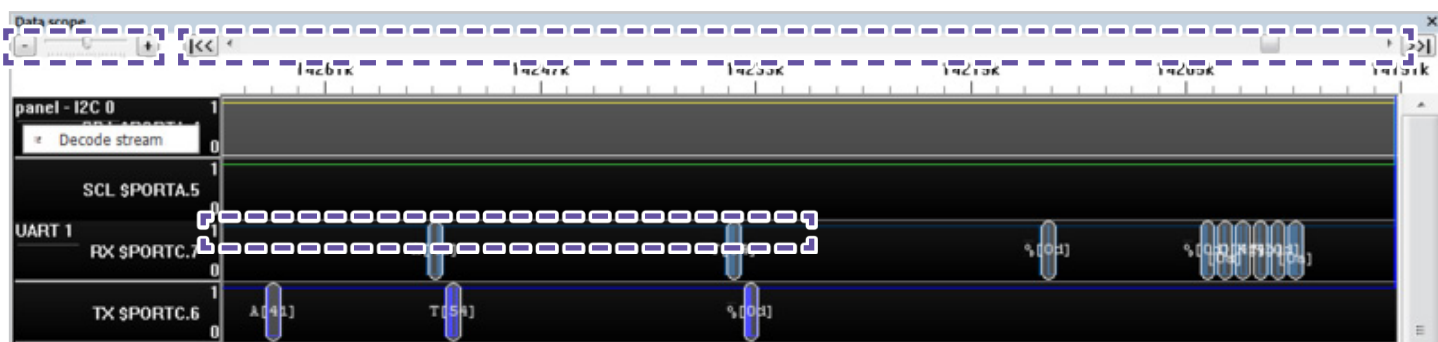
The Data Scope allows the user to see the results and values from raw data and components such as dials and measures. This data is displayed during simulation and allows you to monitor the state of the various signals connected to the scope channels.

The Data Scope can read and display data from various different ports simultaneously during simulation and can be adjusted to view the data at various sample rates which allows for increased accuracy or a larger amount of data to be displayed at any time.

Recently improved functionality of the Data Scope includes a more intuitive interface for navigating the data and creating selections for analysis, with easy to use Pan and Zoom controls (see highlighted below).



The appearance of the new scope is now configurable to suit user preferences, and the user presets can be stored under a template name.



Here is a simple program to track the values of two analogue input signals (seen in the 3D system panel) and then calculate and plot the average between the two readings on the Data Scope. As can be seen here the Data Scope has been configured to the users requirements to allow for a more tailored outcome and user-friendly view.



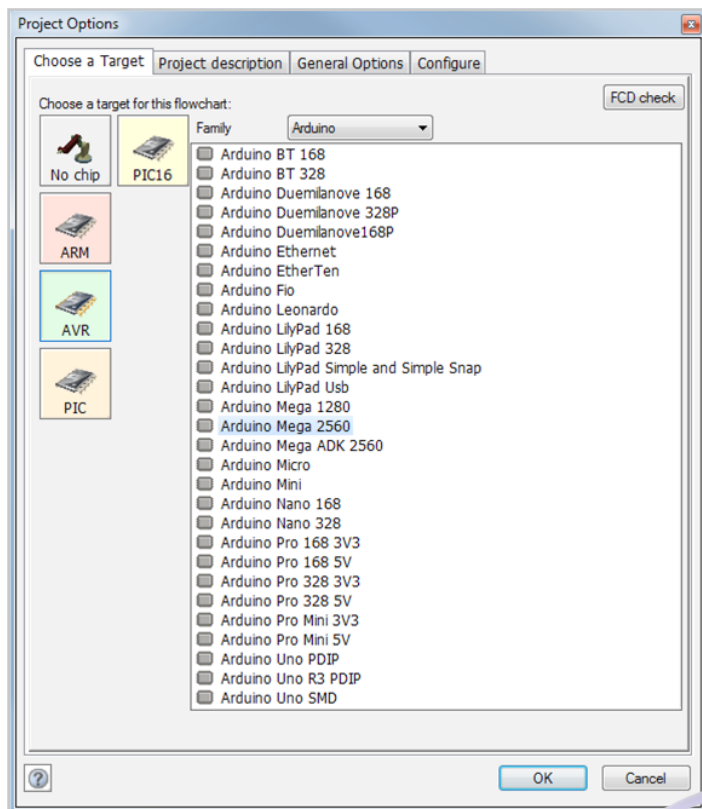
Flowcode 6 - Embracing Arduino.

With Flowcode 6.1 we have significantly improved the support we give for Arduino. The Arduino platform has been embraced worldwide for its fantastic community and affordable hardware. With Flowcode 6, we have a development environment capable of taking your Arduino board to places you never thought possible. What's more with two brand new Arduino shields there is now the capability for you to interface between your Arduino and the vast range of E-blocks we have on offer.

Flowcode has huge benefits over the software platform and compiler used by Arduino and this is where users can really benefit from using the Flowcode environment.

The intuitive, graphical programming style of Flowcode means that there is an ease-of-development aspect to be gained from Flowcode. Whether you're looking to pick up programming for the first time or you're an experienced engineer developing complex systems, Flowcode can certainly benefit you.

Flowcode gives you the ability to programme faster than ever before with pre-set macros for hundreds of built-in components and the ability for users to further develop their own components in the software.



Flowcode now supports a vast range of Arduino boards including the Arduino Mega range.

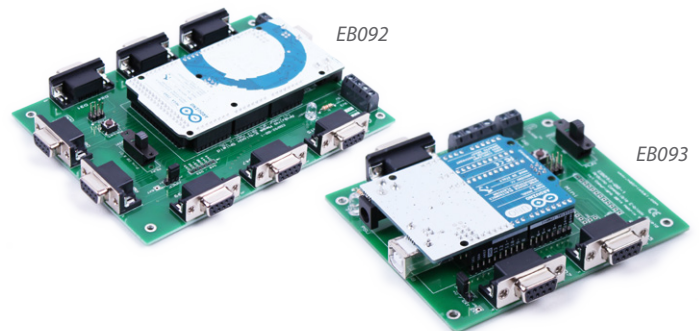
Right: With the introduction of two new E-blocks Arduino shields, you can program your Arduino easier and in a more advanced way than ever before whilst interfacing to our E-blocks platform.

Due to popular demand, we have been working hard to improve our Arduino support in Flowcode and we now have two brand new hardware products aimed at supporting your development if you still want to use E-blocks boards - our new Arduino shields.



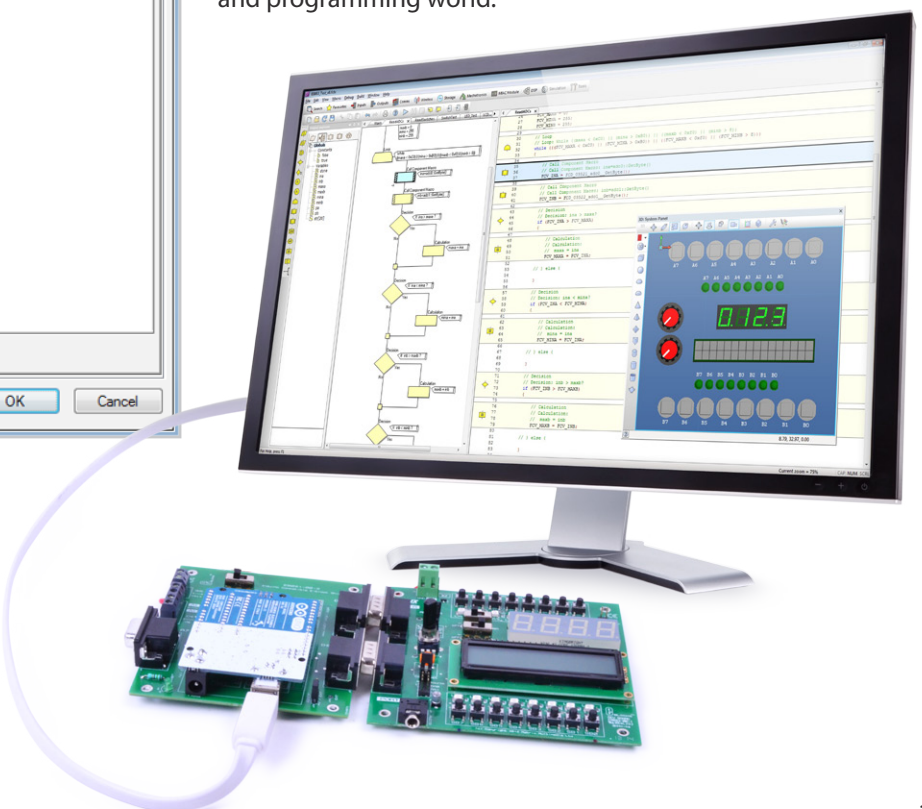
The EB093 will support the Arduino Nano, Uno, Leonardo, Micro and Mini ranges.

The EB092 is a brand new Arduino E-blocks shield and will allow users to also support the Arduino Mega range on top of those Arduino supported by the EB093.



Competitively priced, these boards open up a whole new range of possibilities for Arduino users. Not only can you now program using the Flowcode environment but you can also add our E-blocks boards to your projects for further development.

We would love to hear about your Arduino based projects developed using Flowcode. If you have some projects you'd like to share with us and the wider Matrix community please do not hesitate to get in touch with us. We have loads of ways we can make your project become known throughout the electronics and programming world.



SUPPORTED HARDWARE

MECHANICAL SUPPORT

Flowcode creates hex code for selected microcontrollers and is compatible with third party development tools. Flowcode is very tightly integrated with Matrix's E-blocks boards which snap together for rapid system development. The 60 blocks in the range provide fully documented reference designs of a wide range of technologies you can incorporate into your design; from simple relay circuits to Bluetooth modules. Matrix's new EB006 V9 PIC multiprogrammer includes extended pin test functions.

With Flowcode now you can:

- Develop a circuit board that controls a wind turbine.
- Design a full vehicle habitation system with many control nodes communicating together.
- Make a control system for a mobile bomb disposal robotic arm.

MACHINE BUILDING

Flowcode includes dedicated control and monitoring routines for Matrix's MIAC range of industrial controllers. MIAC controllers are modular, networkable and scaleable allowing engineers to quickly develop machines and connect them to personal computers, to the internet, to tablet computers, to third party communications systems and more.

With Flowcode now you can:

- Control a hydroelectric power station with networked MIAC units and monitor it over the internet.
- Develop a two wheeled balancing robotic platform and see live parameters on a tablet using Bluetooth comms.
- Build a multi-zone central heating system with online monitoring and control.

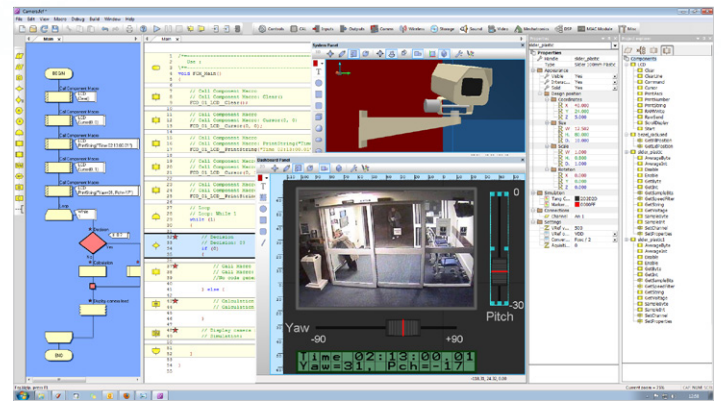
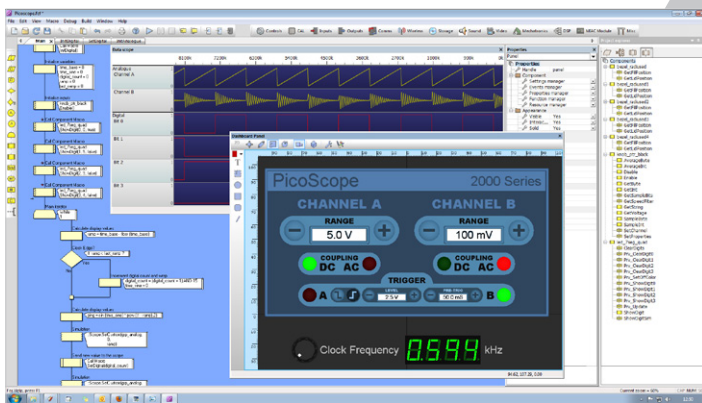
SUPPORTED HARDWARE

TEST AND SCADA

Flowcode 6 includes a full API with DLL support. This means that during simulation and In-Circuit-Test mode you can control any third party instrument that provides a DLL and develop a full SCADA system. You can request a sample of data, or you can use third party software to trigger a set of measurements and display the results using third party software.

With Flowcode now you can:

- Trigger a high specification oscilloscope whilst debugging your microcontroller programme.
- Build a full SCADA test rig, control test parameters, measure and record test results.
- Verify the performance of your electromechanical system using state-of-the-art test gear.



THIRD PARTY PRODUCTS

Flowcode is an open architecture development platform. Flowcode is compatible with other CAD tools so you can import circuit board designs and 3D mechanics. Flowcode produces hex code for microcontrollers which can be used by third party development tools and chip programmers. DLL support means that you can incorporate a wide variety of third party tools into your development system.

With Flowcode now you can:

- Use hex generated by Flowcode in any third party microcontroller development system.
- Use third party test gear like Multimeters and PC scopes via Flowcode DLL commands.
- During In-Circuit-Test control a camera via wi-fi to monitor the effects on your remote system.



FLOWCODE USER CASES

WHO USES FLOWCODE IN EDUCATION?

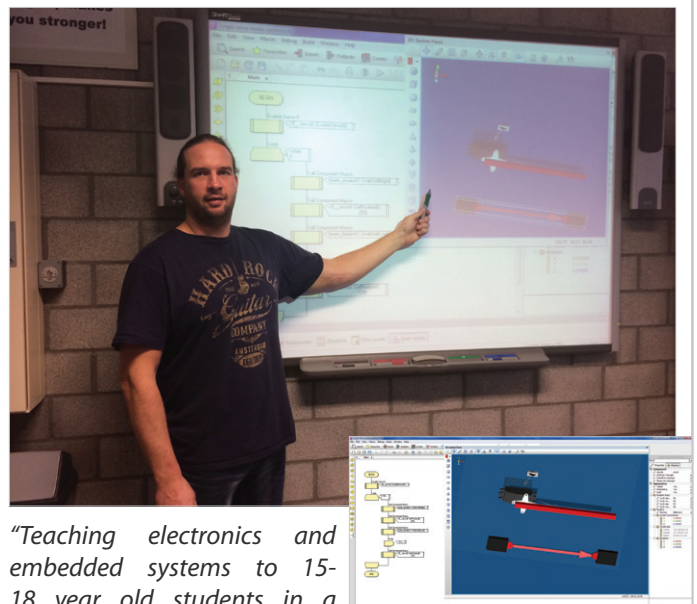
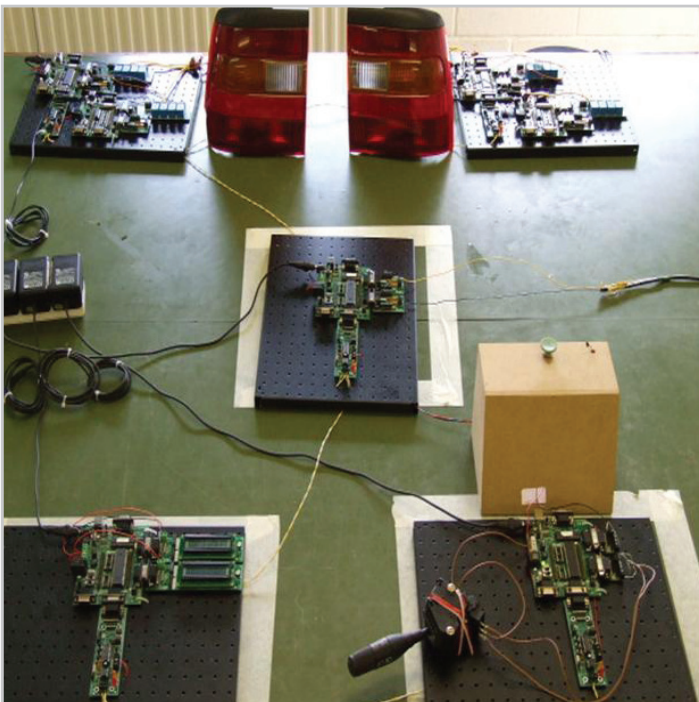
"We use Flowcode and E-Blocks for the last 6 years on the second year projects. This is a great tool to do the link between mechanical engineering and computer science. Flowcode is interesting for us because there is no need to learn a new language. Students can develop very quickly the link between E-Blocks and their Android phone. Multiples of 20mm hole spacing help us to quickly integrate E-blocks in the mechanical part of the project. A ready to use electronic part can be produced in 5 weeks only (2 hours/week)."

Benoit Pierret
INSA Lyon, France



"The Royal Electrical and Mechanical Engineers at Arborfield in the UK have been using E-blocks and Flowcode since the 'preparation for the Digital Battlefield' directive acknowledged that electronics and computer controlled systems are at the heart of all defence related activities - from the control systems in tanks and planes using CAN bus, to equipment tagging and supply chain management using Radio Frequency Identification (RFID) technology."

UK Armed Forces



"Teaching electronics and embedded systems to 15-18 year old students in a technical school near Antwerp in Belgium. We have been using Flowcode and E-blocks in most of the electronics courses all over Flanders for the past 8 years. It's a great tool to put your first steps in embedded programming and it's also great to do the high level stuff like embedded webserver, Bluetooth and USB. The excellent and fast support of the Matrix team gives teachers the necessary confidence to take their projects to the next level."

"Our curriculum is changing from pure electronics to engineering and I was very pleased to see that Flowcode 6 also evolved in this way. Students do 'product-design' now – FC6 lets them creatively combine microcontroller circuits with their 3D mechanical drawings and lets them fully 3D-simulate their idea at home. They can download the tested code to the actual hardware the next day in classroom."

"The very first small project we did with FC6 was to develop an automatic gate with a servo motor that opens automatically whenever an object breaks the beam. Something we could use with our model railtrack. The available videolessons and example programs were enough for our students to get this up and running in no time."

Bart Huyskens – Teachers embedded systems - St.JozefinstituutSchoten, Belgium.

"As the Senior Electrical/Electronic Technician in the Faculty of Engineering, I find that using 'Flowcode' is an invaluable tool, to clearly convey the Embedded Code to be used in applications with Microchip's 18F4455 & 18F2455 (ECIO Modules). Previously, the School of Electrical & Electronic Engineering have introduced students to the 'Formula Flowcode' with the little robot vehicle at their command. The School of Mechanical Engineering students build their own buggy designs and I am confident a few incorporate 'Flowcode' Modules into their designs."

Matthew Buckley.
Leeds University, UK

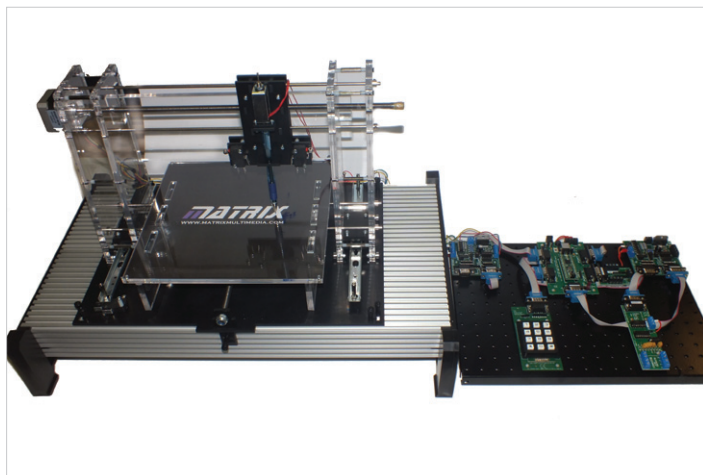
WHO USES FLOWCODE IN INDUSTRY?

"I am very new to Flowcode, but have experience of 9+ years with another PIC RAD capable program. They have a great program but unfortunately their user support has become poor over the years, so finally decided to review the market and chose to go with Flowcode V6.

I'm very much still coming to grips with Flowcode. But Flowcharting is very intuitive and the use of supplied and user generated components is a great idea. The customer and user support information being given via the forum, blog and Twitter is just so excellent - timely and constructive.

Well done Matrix on V6 and the effort that has and very obviously is still going into making V6 a great and very useable product."

Richard Blick, Telecommunications Engineer



Sargent Electrical LTD

Sargent Electrical Hull, UK, use Flowcode and E-blocks technology to develop advanced wiring looms and control systems for camper-vans and caravans.

Sargent's latest range of habitation systems interface directly into the CAN bus of host vehicle chassis to minimise wiring costs.

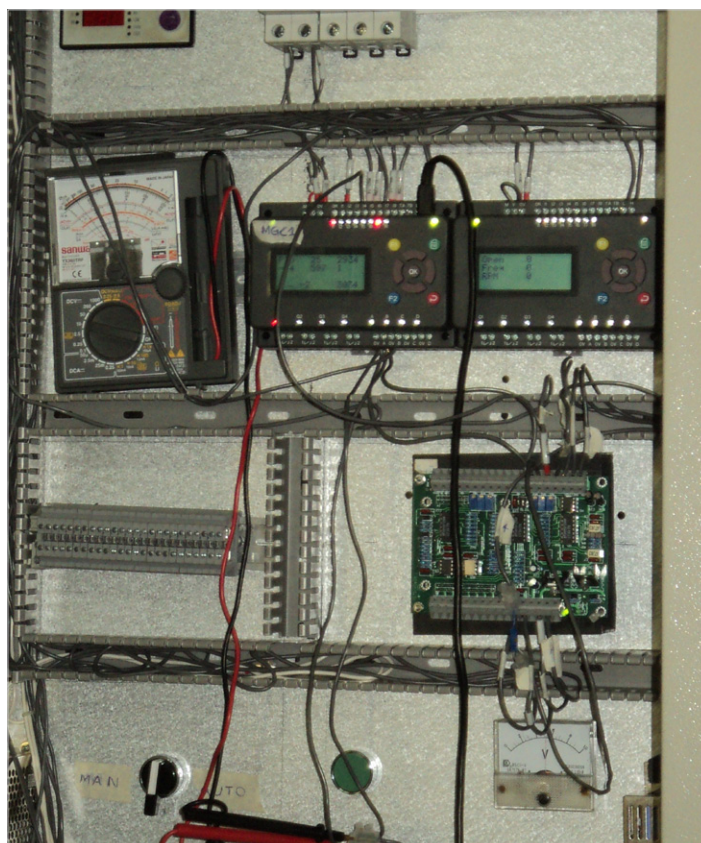
They use full colour graphical displays to provide customers with advanced habitation system control.



Vidulanka PLC

Vidulanka PLC in Sri Lanka uses Flowcode and MIAC technology as the main control system for small hydroelectric power stations, which generate up to 800kW.

Flowcode is used to generate programs for up to 4 MIACs, interconnected by CAN bus which together control wicket gates, generator voltage, synchronisation and over voltage trip systems in the generator house and feed data into a Human Machine Interface (HMI) panel for control and monitoring the power station's performance



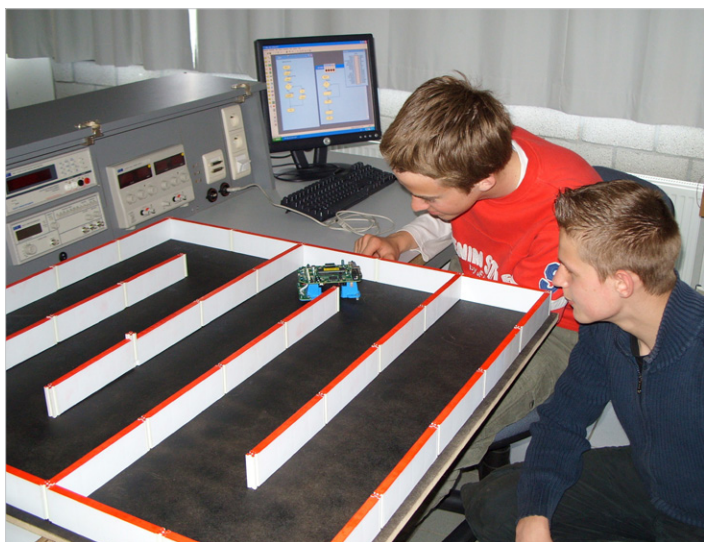
FLOWCODE 6 SUPPORT

ACADEMIC SUPPORT

Flowcode delivers outcomes not only in professional, industrial business but also at a number of levels of education. For many years Flowcode has delivered at further and higher education levels.

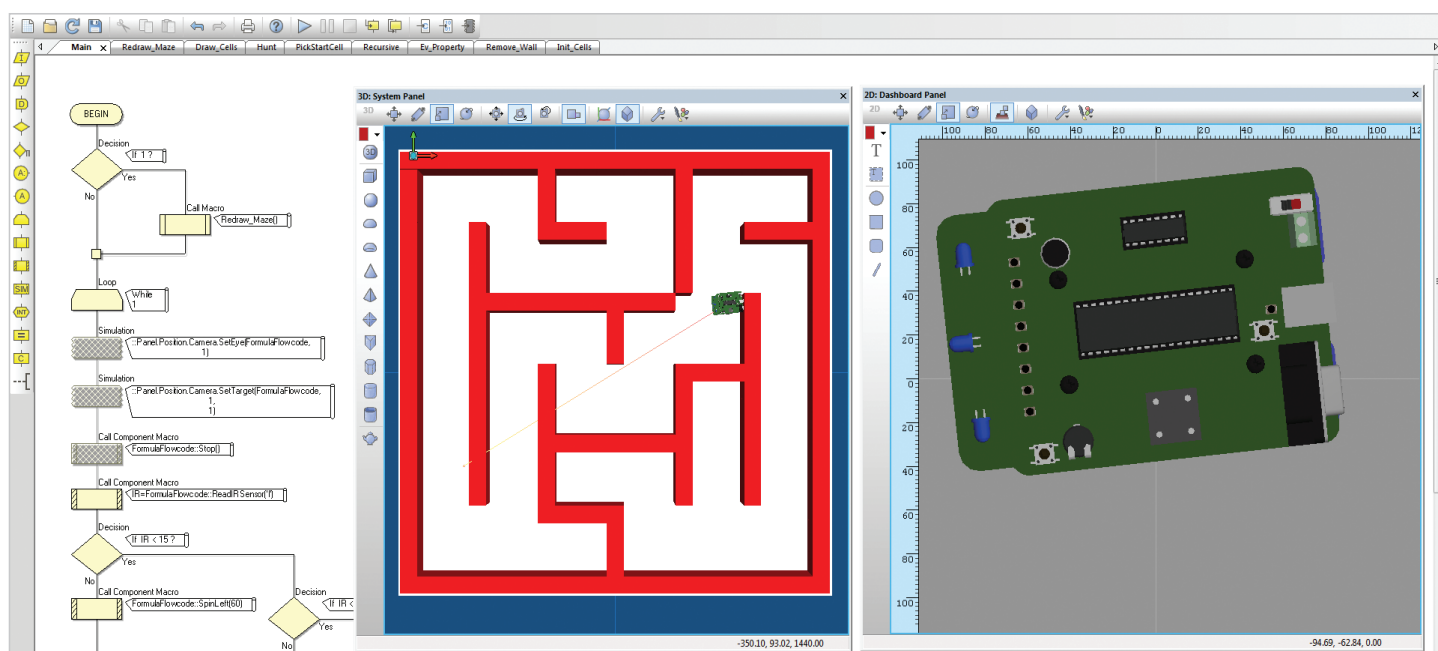
- In France, hundreds of further and higher education establishments use Flowcode to deliver teaching of electronic system design.
- In Flemish Belgium most technical schools use Flowcode to deliver a combined course in electronics and Mechanics.
- Hundreds of 16-18 colleges and Universities in the UK use Flowcode.
- Flowcode is used as an educational product in over 50 countries around the world.

What's more, Flowcode now delivers for the 14-16 Design & Technology and Computer Science market in the shape of Flowcode S.E. With numerous developments in curriculum over recent years and probable changes on the horizon for the delivery of D&T and CS teaching, the need for students at KS4 to understand and have the ability to manipulate coding techniques and programming of hardware has developed.



Students can use Flowcode for learning programming, electronic design, robotics, and pneumatics and can link programs for a range of Matrix hardware systems including our low cost Prototype and Projects boards, Formula Flowcode robot, our MIAC and Automatics solutions and any third party hardware that accepts hex code for the appropriate microcontroller devices.

- A function limited version of Flowcode 6
- Develops code for microcontrollers and Windows PCs
- Supports selected PIC, AVR, Arduino, dsPIC microcontrollers
- Compatible with many third party microcontroller development systems.
- Links to Solidworks and other 3D design packages
- Interfaces to the internet, and many other computer systems



SUPPORT FOR LEARNERS AND TRAINERS

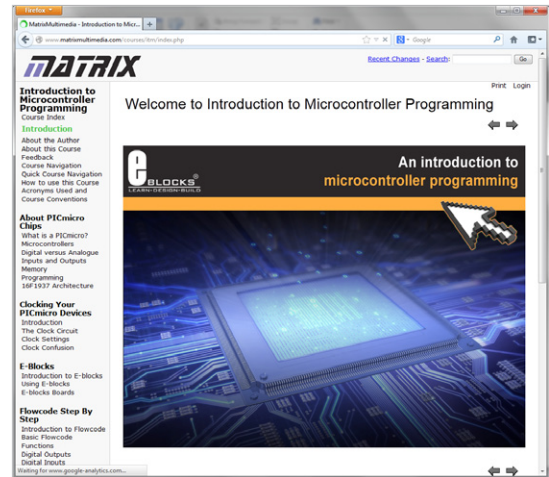
Flowcode 6 is very well supported. Complete beginners will find our free online courses great for covering the basics of developing electronic systems. Experts will find our examples, manuals and hardware module datasheets online invaluable. All users will value the support offered by our engineers, valued contributors, and extended online community.

Online help and videos



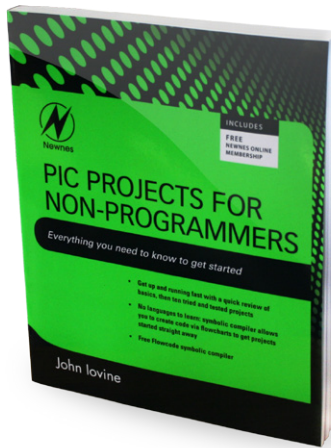
Flowcode 6 connects to an online web help portal, which allows users to quickly gain access to the vast array of resources available online. This includes a full suite of extensive and informative training videos covering many aspects of Flowcode: from beginner tutorials to advanced tips and tricks.

Online courses



On the Matrix website you will find a number of free web based courseware applications which cover not only the Flowcode basics, but also the fundamentals of microcontrollers and how they are used in electronic systems.

Tutorial manuals and books



In addition to the online courses, a number of manuals for advanced topics such as Bluetooth, USB and ZigBee are also available for purchase from the Matrix website.

Flowcode is also supported by a range of third party books.

PROFESSIONAL SERVICES

The growing number of industrial users with Flowcode 6 means we have now developed a range of professional support services designed to meet your needs as a working organisation. They include:

Flowcode 6 customer support

Our support processes are focused at all times on providing you with a responsive and cost-effective service, while maintaining or improving the quality of the product.

To maximize support efficiency and software quality, we ensure that the developers who originally wrote the code are involved with support activities as much as possible. Fortunately our extremely committed and knowledgeable staff are also users of our solutions in their own time. As such, they can totally empathise with the demands of our customers.

Our goal is to ensure your satisfaction each time you need to contact us for support by:

- Responding to your requests with targeted guidelines.
- Providing ongoing communication regarding your problem status through problem resolution.
- Taking ownership of your request for support.
- Providing a defined escalation process when management assistance is needed.
- Maintaining our commitment to continuous improvement of our service process.

Flowcode 6 and electronic design

Our purpose in offering this service is to allow our industrial customers to reduce their time to market for their solutions.

The extended services offering from Matrix allows Flowcode 6 customers the ability to subcontract specific pieces of work within the development cycle to the development team at Matrix. The basis for this is that an agreed amount of work per quarter (within limits) is blocked in the diaries of Matrix developers and allows the customer the flexibility when to call this work off.

The extended service process:

- Quarterly workloads agreed to create a “bag of hours” (with auto flex of $\pm 25\%$ carry over/pull forward with following quarter).
- Single invoice management on both parties reduce administration costs.
- Single point of contract for Project Management of work.
- Start of work commitment within agreed SLA's.
- Monthly timesheets to communicate consumption against the “bag of hours” agreed.
- Preferential consultancy rates for the “bag of hours” agreed.
- Ability to use these hours for a broad range of tasks (required skills to be agreed within Matrix competencies).

Accelerator

Our Accelerator Package is designed to help you gain the benefits of a world class Integrated Development Environment in the shortest possible time.

To achieve this we combine the powers of Flowcode 6 along with our Professional Services team. We take on the work of installing the software to our best practice recommendation, then we train you in a dedicated course for your team to get you through to an intermediate level of performance within 2 days.

In addition, we provide a further 8 hours of remote telephone support to your team to ensure your team do not feel left on their own!

The accelerator pack:

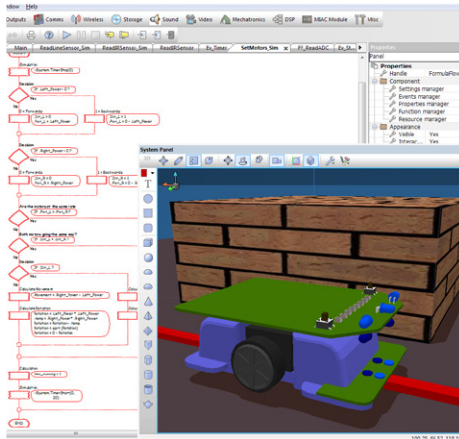
- Installation of 5 seats of Flowcode 6 Professional, including 1 Chip Pack.
- Dedicated Introduction to Flowcode 6 course.
- Dedicated 4 hours of training that is determined by you.
- 8 hours of telephone support by our Extended Services team.
- 12 months of Customer Support Agreement.
- 20% discount on additional Extended Services hours.

For more information of Professional Services, please contact Liam Walton at Matrix TSL - liam.walton@matrixtsl.com

COMMUNITY SUPPORT

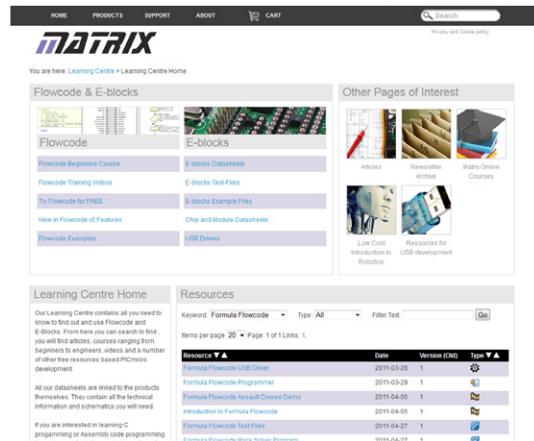
There are more than 20,000 Flowcode users in our growing interconnected community. We encourage all users, from students through to industrial engineers in large multinational companies, to ask questions, seek support for projects and share ideas.

Example projects



In addition to the examples we have prepared for Flowcode 6, there are also thousands of user-contributed programs available on our website and on third party websites.

Learning Centre



Our Learning Centre has more than 700 resources including examples, datasheets, drivers, circuits, articles, videos and software downloads. This amazing resource is free to all registered users.

Forum and FAQ centre



If you have questions or technical problems with Flowcode then you will find our community eager to help. All users can view our forum. Only registered users can make posts. Take a look yourself and see how good our support is.

Further examples, support and useful information can be found on our blog at www.matrixtsl.com/blog or by visiting our Twitter account @MatrixTSL

LANGUAGE SUPPORT

Flowcode 6 is available in the following languages:



ENGLISH



GERMAN



FRENCH



ROMANIAN



MANDARIN



JAPANESE



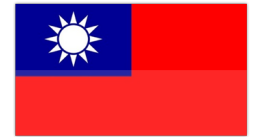
GREEK



POLISH



RUSSIAN



TAIWANESE



ITALIAN



DUTCH



SPANISH

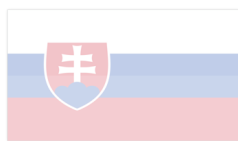


PORTUGUESE (BRAZIL)

Flowcode 6 will soon be available in the following languages:



ARABIC



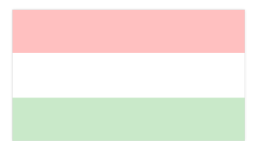
SLOVAK



PORTUGUESE



FINNISH



HUNGARIAN



SLOVENE



TURKISH



DANISH



VIETNAMESE



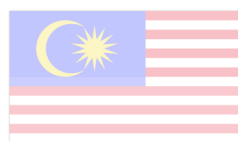
SWEDISH



THAI



KOREAN



MALAY

Flowcode 6 will be available in 14 languages, with all characters and non-Latin fonts fully supported. Whilst English is the default language of engineers internationally, having software in your language allows you to concentrate on developing your programs, increasing your creativity and productivity.

Note that only the GUI and help file will be translated. All documentation on the new Flowcode API will remain in English.

FLOWCODE VERSIONS AND LICENSING

LICENSING AND UPGRADES

FREE VERSION

This well featured version allows you to verify that Flowcode will provide the functions you need and is also suitable for ongoing use with personal computers.

CHIP PACK VERSION

Chip pack versions of Flowcode are available for each of the microcontroller chip types supported. When bought alone they give limited functionality for each chip type as detailed in the Feature list in the Flowcode datasheet. When used in conjunction with a professional or multiuser education license, the chip pack unlocks the full Flowcode features for the chip type. Note that a multi chip version of Flowcode 6 is much cheaper than a multi chip version of Flowcode 5.

PROFESSIONAL VERSION

The Professional version includes all functions, components, and is licensed for commercial use. Discounts for multi-user ('Enterprise') versions are available.

ACADEMIC VERSIONS

A reduced cost Academic version of Flowcode is available and it provides the same functionality as the Professional version. Academic multi-user versions (10 user, 50 user) are also available. These are for sale only to educational schools, colleges and universities.

UPGRADING LICENCES

Upgrades from one type of licence (e.g. Chip pack to Pro) to another are simply the price difference.

FLOWCODE 5 TO FLOWCODE 6 UPGRADE

Upgrades from Flowcode 5 to Flowcode 6 will be charged at 50% of the Flowcode 6 price.

FLOWCODE 4 TO FLOWCODE 6 UPGRADE

Upgrades from Flowcode 4 to Flowcode 6 will be charged at 70% of the version 6 price.

CROSSGRADE

Chip pack and Professional users simply buy the Chip pack to get compilation rights for a new family of microcontrollers.

UPGRADE PROCEDURE

Please contact Matrix TSL or one of our dealers with your old serial number which is found in the Help > About section of your existing copy of Flowcode.

BUYING ONLINE

Available from Matrix and all authorised dealers.

ACTIVATION

Each product will need activation with a code issued by Matrix. An internet connection is required for this.

UPGRADE RIGHTS

Upgrade rights do not apply to all versions of Flowcode. If your version of Flowcode has been included free of charge with MIAC or other hardware systems then upgrade rights might not apply.

FLOWCODE 3 TO FLOWCODE 6

There is no Flowcode 3 to Flowcode 6 upgrade discount.

Proposed Version						
Feature		Version				
		Free - first 30 days	Free - post 30 days	Chip pack only	Professional	Academic
						Flowcode SE
1	General					
	Commercial Use	✗	✗	✗	✓	✗
	Multi-seat license available	✗	✗	✗	✓	✓
	Compile to Chip	✓	✗	✓	✓	✓
	Unrestricted Chip selection	✓	✓	✓	✓	✗
2	Control and measurement system design	✓	✓	✓	✓	✓
	Import 3D objects and characterise for movement	✓	✓	✓	✓	✓
	Create 3D objects and characterise for movement	✓	✓	✓	✓	✓
	Create 'physical' and electronic components	✓	✓	✓	✓	✓
	Develop flowcharts for control and monitoring	✓	✓	✓	✓	✓
	Full access to simulation API	✓	✓	✓	✓	✓
	Unrestricted programme size	✓	✓	✓	✓	✓
	Develop Human-Machine Interface (HMI) controls	✓	✓	✓	✓	✓
	Simulate electromechanical systems	✓	✓	✓	✓	✓
	Control third party hardware using DLLs	✓	✓	✓	✓	✓
	Deploy your program on a PC (SCADA)	✓	✓	✓	✓	✓
	Ability to comment your own code	✓	✓	✓	✓	✓
	Auto document your program	✓	✓	✓	✓	✓
	Save your designs and publish as templates	✓	✓	✓	✓	✓
	Develop programs for MIAC controlled by PC	✓	✓	✓	✓	✓
	Download programs to MIAC	✓	✗	✓	✓	✓
	Download programs to Formula Flowcode	✓	✗	✓	✓	✓
	Access to Plug-ins	✓	✓	✓	✓	✓
3	Flowcode Components					
	Input / output components	✓	✓	✓	✓	✓
	Wired communications	✓	✗	✗	✓	✗
	Wireless communications	✓	✗	✗	✓	✗
	Wrapped wireless components	✓	✗	✓	✓	✓
	Mechatronics	✓	✗	✗	✓	✓
	MIAC expansion modules (<i>coming soon</i>)	✓	✗	✗	✓	✗
	DSP	✓	✗	✗	✓	✗
4	SCADA support					
	In-Circuit-Test	✓	✗	✓	✓	✓
	Third party instruments	✓	✓	✓	✓	✓
	Consoles	✓	✗	✗	✓	✓
	Softscope	✓	✗	✗	✓	✓

Ordering information	
Flowcode Academic single	FC6AC01NEXXX
Flowcode Academic 10 user	FC6AC10NEXXX
Flowcode academic 50 user	FC6AC50NEXXX

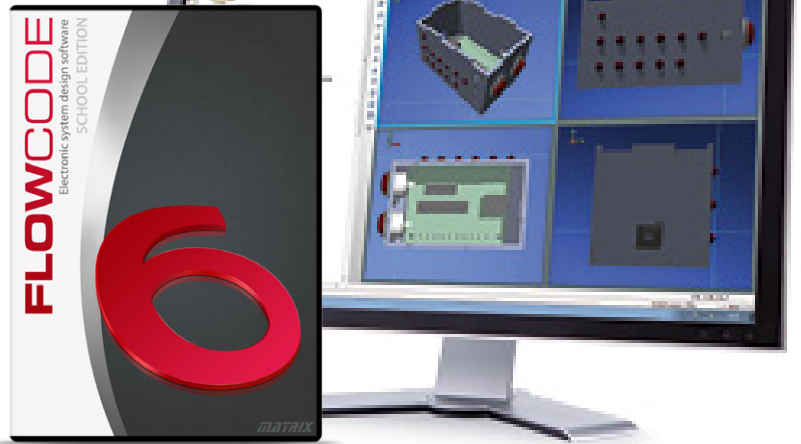
Free Flowcode SE version

Flowcode SE is a reduced function version of Flowcode 6. It is the same software products with a different 'skin' on it. All Flowcode 6 Academic customers can receive Flowcode SE free of charge should they want it.

Free student use at home

From September students attending an institution that has a full licence of Flowcode 6 or Flowcode SE will have an option to receive a licence for Flowcode SE to use at home for 365 days from the day of release. This service will be free of charge and will be administered by a portal on the matrix web site. This will be linked to the registration email address of the institution. With regards to this free of charge service:

- Teachers will need to gather email addresses of all students who want to take up the service.
- These email addresses will need to be logged with Matrix once per year using the Matrix web site.
- Matrix will send each student an email with a link to where the copy of Flowcode can be downloaded from.
- Students will need to register the product once installed in the same way as all other Flowcode licence holders.
- Matrix may from time to time send participating students email news letters on products that are for sale, competitions and events they can take part in. Email addresses of participating students will be kept confidential and will not be sold or passed on to a third party.
- Schools will need to have the latest version of Flowcode. Currently V6 or V6 SE. Should a new version of Flowcode become available Schools will need to upgrade to this latest version to retain the service.
- Functionality of Flowcode for students at home is limited to SE functions: no comms. Full compile and download capabilities will be granted. Students needing additional functions will need to use the version of Flowcode at their institution.
- Students can view matrix forum information but will not be granted access to post to the Matrix forum: support will be carried out by their host institutions



Flowcode SE supports the following chip and devices:

PIC Chips

8-pin 12F675, 14-pin 16F1825, 18-pin 16F1847, 18-pin 16F88, 20-pin 16F1829, 40-pin 16F1937

dsPIC Chips

18-pin 30F2011, 28-pin 33FJ128GP802, 40-pin 30F4013

AVR Chips

20-pin ATTINY861, 28-pin ATMEGA328P, 40-pin ATMEGA324P

PIC Hardware

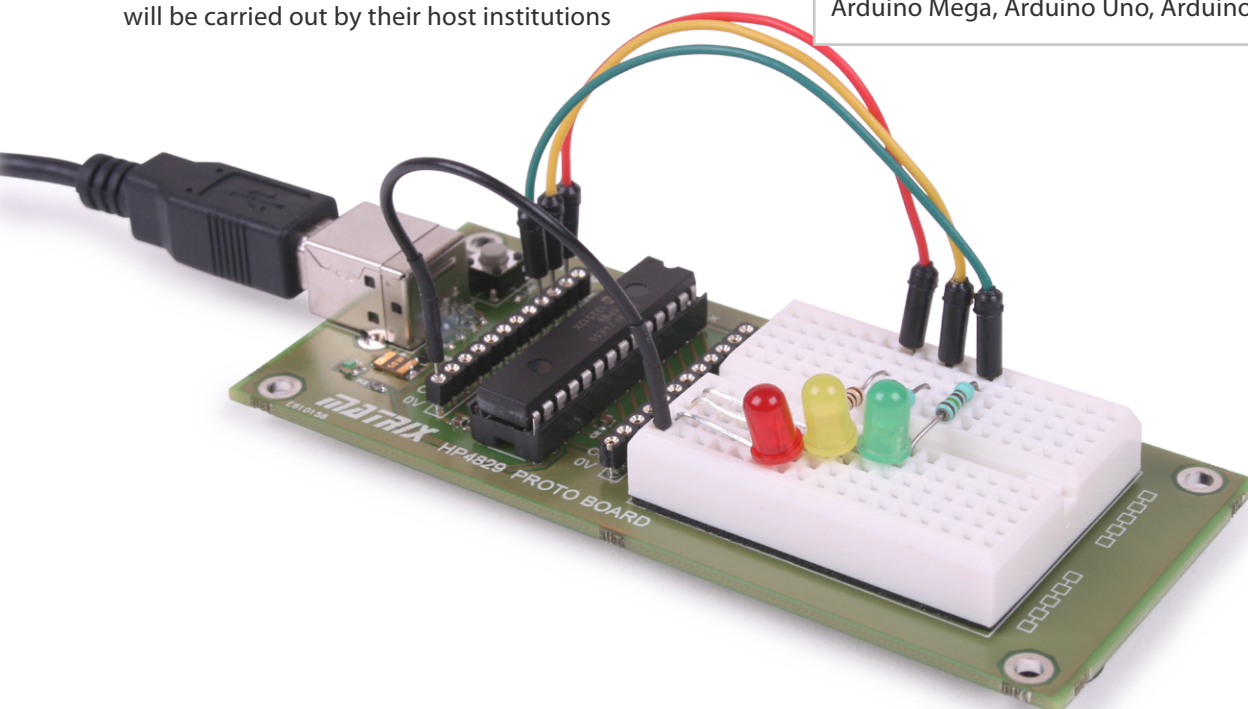
ECIO28P, ECIO40P, Formula Flowcode, MIAC, MIACv2, Locktronics PIC, Project Board, Proto Board

dsPIC Hardware

ECIO40P16

AVR / Arduino Hardware

Arduino Mega, Arduino Uno, Arduino Nano



PARTNERSHIP PROGRAMME

Our new Partner Programme is established brand new from the release of Flowcode v6.

Electronic component partners

Matrix plans to have a large electronic and electromechanical component library to allow Flowcode users to make the best designs possible in as short a time as possible. If you are a manufacturer of electronic components and want to help our customers use your parts in their designs then our applications engineering team can give you a free version of Flowcode and will support you in the process of developing Flowcode components.

Test equipments partners

If you manufacture test equipment then we can help you design an interface inside Flowcode to integrate your equipment into the Flowcode environment. This will allow all Flowcode users to easily incorporate your equipment into their test rigs and to more easily use your equipment as part of the design process. You can take advantage of the fact that Flowcode will be distributed free of charge to all users as a SCADA development system.

Product development partners

If you are developing products that make use of Flowcode at the point of customer use, or which in any way promotes Flowcode to your customers, then we can support you with publicity and applications support.

Sales partners

If you believe that you can help us to promote and sell Flowcode to your customer base then we would love to hear from you. We can offer you support for training, an excellent reseller discount from the retail price of Flowcode so you can make a profit from your promotional activities, and a certain level of technical support so you, in turn, can support your customers.

Partner benefits

As a Matrix Partner, you receive a range of benefits including promotion and publicity of your brand, added support, free software and the ability to use the Matrix and Flowcode brand. In return we want you to help us promote our business. Simple!

As a Matrix Partner, you receive:

- Free version of Flowcode
- Free software updates of Flowcode
- Applications support
- Publicity opportunities on our quarterly e-newsletter
- Publicity opportunities via our online forums
- Inclusion of components into our online component library for use by all customers
- Inclusion on the partners page of our website – www.matrixtsl.com – with links to your website
- Company logo on relevant pages of our website – with links to your website
- Company logo and listing on the partner page of future Matrix brochure(s)

What we want from you

Simple: if we help you promote your business we want you to help us promote ours. So in exchange for our help we want you to agree to a level of:

- Promotion of Flowcode through your organisation with relevant communications to your customer base (e.g. website, sales team etc).
- If you want to take advantage of our sales network (note that 80% of our sales are through partners outside the UK) then we need you to give Matrix a 40% discount on the retail price for your products so that we can sell them through our sales channels and make a profit from our relationship.

If you are interested then please get in touch with our Business Development Manager, Liam Walton at liam.walton@matrixtsl.com

Components in Flowcode 6 are modelled on real parts which can be easily be purchased from the internet. If you need components that are not in the standard library you can create your own with the Component Creator software provided.

Modules containing the more advanced parts (e.g. communications technology blocks and displays), and their circuit diagrams, are available with our E-blocks rapid prototyping system which are tightly integrated with Flowcode. This means that assembling a circuit diagram and the parts for your project can easily be done from the information provided.

The following parts are shipped with Flowcode 6:

OS/Processor cores

- Windows XP, Vista, 7, 8
- PIC10, 12, 16, 18
- dsPIC/PIC24/PIC33
- Atmel TINY, MEGA
- Atmel AT91, SAM7, ARM
- Arduino

See page 31 for a detailed list of supported chips.

3rd party equipment / tools

- K8055D
- PicoScope
- TTI TG5011 Signal Generator
- TTI Power Supply _ PL155 _ P

Advanced

- Button helper
- COM port
- FCD helper
- Marking control

CAL

- ADC *
- CAN *
- EEPROM *
- I²C
- PWM *
- SPI *
- UART *

Comms

- CAN (Internal, MCP2515) *
- I²C Master
- LIN Master
- LIN Slave *
- MIDI *
- Modbus Master *
- One Wire *
- RS232 *
- SPI Master
- TCP Base
- TCP/IP *
- USB HID *
- USB Serial *
- USB Slave *
- Visi (4DSYSTEMS) *
- Webserver *

Controls

- Dash Scale Horizontal
- Dash Scale Vertical
- Dashboard Knob
- Dashboard Meter
- Dashboard Text

- Panel Console Viewer
- Scale Arc
- Scale_Linear
- Simulation LED
- Slider control

DSP

- Control *
- DSP System *
- Delay *
- Fast Fourier Transform (FFT) *
- Filter *
- Frequency Generator *
- Input *
- Level *
- Output *
- Scale *
- Sum *

Inputs

- Beam Breaker
- Collision Detector
- Microswitch
- Proximity switch base
- Reed Switch

Inputs: General

- ADC base
- Keypad (Cursor 3x3)
- Keypad (Eb014 3x4)
- Keypad (Generic)
- Keypad (Hex 4x4)
- Potentiometer (Black)
- Potentiometer (Colour)
- Potentiometer (Panel)
- Potentiometer (Slider)
- Potentiometer (Trimmer)
- Switch (Generic)
- Switch (Push, Dashboard)
- Switch (Push, PCB)
- Switch (Push, PCB, SMT)
- Switch (Push, Panel)
- Switch (Rocker)
- Switch (Slide, Dashboard)
- Switch (Slide, PCB)
- Switch (Toggle, PCB)
- Switch (Toggle, Panel)
- Switch Array (Push)
- Switch Array (Slide)
- Switch Array Base
- Switch base

Inputs: Sensors

- Accelerometer (EB068, LIS3LV02DQ) *
- Accelerometer Compass (EBM015, LSM303DLHC) *
- Encoder Rotary *
- Gyroscope L3G4200D (EBM009)
- Humidity SHT21 (EBM016)
- Temperature LM75B (EBM004)
- Thermocouple TypeK (EBM008)

MIAC Module

- MIAC
- MIAC USB Slave

Matrix Tools

- Auto Version Identifier
- E_block Helper
- Scope monitor

* requires professional licence

COMPONENTS

Mechatronics

- 3D Printer *
- Accelerometer Gyro (MPU_6050)
- Formula Flowcode
- G Code Parser
- Motor (Full Bridge)
- Motor (Half Bridge)
- Motor Base
- Photo Reflector
- Photo Transistor
- Servo Controller *
- Servo Motor Base *
- Solenoid Base
- Solenoid DC1
- Standard Servo
- Stepper _ Generic *
- Stepper motor base *

Misc

- Bezel Radiused
- Circular Buffer
- Clone Matrix
- Motion Helper
- PWM *
- Port Matrix
- RxTx Flasher
- Target Chip
- Thermistor (EBM003)

Modelling Components

- Formula Flowcode Racetrack
- Maze Generator

Outputs

- LCD (Adafruit, OLED)
- LCD 4x20 (Adafruit, OLED)
- LED Matrix (Parallel)
- LED Matrix (Serial)
- RAM LCD

Outputs: General

- 7Segment (Quad)
- 7Segment (Single)
- Combo Board (EB083)
- Dashboard lamp
- GLCD (EB043_00_1)
- GLCD (EB043_00_2)
- GLCD (EB057)
- GLCD (EB075, 4D_Goldelox)
- GLCD (EB076, 4D_Picaso)
- GLCD (EBM001)
- GLCD (ILI9341)
- GLCD (KS0108)
- GLCD (SSD1289)
- GLCD (SSD1305)
- GLCD (SSD1305) Buffered
- GLCD (SSD1306)
- GLCD (SSD1306) Buffered
- GLCD (SSD1306) I2C
- GLCD (SSD1322) Buffered
- GLCD (SSD1322) Parallel
- GLCD (SSD1351)
- GLCD (ST7565R)
- GLCD (T6963C)
- GLCD base
- LCD (EB005, 16x2)
- LCD (Generic)
- LCD (Generic, 20x4)
- LCD (I2C)
- LED (5mm, PCB)
- LED (5mm, Panel)
- LED (Generic)
- LED (Generic, RGB)
- LED (LES, Panel)
- LED (RGB, PCB)
- LED (SMD, PCB)

- LED Array
- LED Array (PCB)
- LED Base
- LED Charlieplex
- Speech

Simulation

- Animator
- Basic Sim. Slide Switch
- Basic Sim. Switch
- Component Label
- Component Labels
- Data Injector
- FTDI (FTD2XX) *
- Injector (AT)
- Injector (CAN)
- Injector (COM)
- Injector (DS1307 RTC)
- Injector (File)
- Injector (GPS NMEA)
- Injector (Human Interface)
- Injector (vNet)
- LCD control
- Meter Square
- Sim. Switch Base

Storage

- EEPROM
- FAT (SD, SDHC)
- Lookup tables

Wireless

- Bluetooth (EB024, Generic AT)
- Bluetooth v2 (EB024, Generic AT) *
- GPS (EB056, Generic NMEA)) *
- GSM (EB066, Generic AT)) *
- IrDA (EB012, MCP1250, MCP2120)) *
- RC5 (EB060, Generic 36KHz)) *
- RF ISM (EB063, MRF49XA)) *
- RFID (EB052, RWD_MICODE)) *
- WLAN (EB069, WIZ610wi)) *
- Zigbee (EB051, XBEE)) *

* requires professional licence

TARGET SPECIFICATION

PICmicro version

10F200 (high tech only), 10F202 (high tech only), 10F204 (high tech only), 10F206 (high tech only), 10F220 (high tech only), 10F222 (high tech only), 12C508 (high tech only), 12C508A (high tech only), 12C509 (high tech only), 12C509A (high tech only), 12C671, 12C672, 12CE518 (high tech only), 12CE519 (high tech only), 12CE673, 12CE674, 12F1822, 12F1840, 12F508 (high tech only), 12F509 (high tech only), 12F510 (high tech only), 12F609, 12F615, 12F617, 12F629, 12F635, 12F675, 12F683, 12HV609, 12HV615, 12LF1840, RF12F675F, RF12F675H, RF12F675K, 16C716, 16C717, 16C72, 16C72A, 16C73, 16C73A, 16C73B, 16C74, 16C74A, 16C74B, 16C76, 16C77, 16C770, 16C771, 16C773, 16C774, 16C84, 16CR72, 16CR83, 16CR84, 16F1823, 16F1824, 16F1825, 16F1826, 16F1827, 16F1828, 16F1829, 16F1847, 16F1933, 16F1934, 16F1936, 16F1937, 16F1938, 16F1939, 16F1946, 16F1947, 16F505 (high tech only), 16F506 (high tech only), 16F610, 16F616, 16F627, 16F627A, 16F628, 16F628A, 16F630, 16F631, 16F636, 16F639, 16F648A, 16F676, 16F677, 16F684, 16F685, 16F687, 16F688, 16F689, 16F690, 16F707, 16F716, 16F72, 16F722, 16F723, 16F724, 16F726, 16F727, 16F73, 16F737, 16F74, 16F747, 16F76, 16F767, 16F77, 16F777, 16F785, 16F818, 16F819, 16F83, 16F84, 16F84A, 16F87, 16F870, 16F871, 16F872, 16F873, 16F874, 16F874A, 16F876, 16F876A, 16F877, 16F877A, 16F88, 16F882, 16F883, 16F884, 16F886, 16F887, 16F913, 16F914, 16F916, 16F917, 16F946, 16LF1824, 16LF1825, 16LF1828, 16LF1829, 16LF1847, 16LF1902, 16LF1903, 16LF1933, 16LF1934, 16LF1936, 16LF1937, 16LF1938, 16LF1939, 16LF1946, 16LF1947, 16LF707, 18F1220, 18F1230, 18F1320, 18F1330, 18F13K22, 18F13K50, 18F14K22, 18F14K50, 18F2220, 18F2221, 18F2320, 18F2321, 18F2331, 18F23K20, 18F23K22, 18F2410, 18F242, 18F2420, 18F2423, 18F2431, 18F2439, 18F2450, 18F2455, 18F2458, 18F248, 18F2480, 18F24J10, 18F24J11, 18F24J50, 18F24K20, 18F24K22, 18F2510, 18F2515, 18F252, 18F2520, 18F2523, 18F2525, 18F2539, 18F2550, 18F2553, 18F258, 18F2580, 18F2585, 18F25J10, 18F25J11, 18F25J50, 18F25K20, 18F25K22, 18F25K80, 18F2610, 18F2620, 18F2680, 18F2682, 18F2685, 18F26J11, 18F26J13, 18F26J50, 18F26J53, 18F26K20, 18F26K22, 18F26K80, 18F27J13, 18F27J53, 18F2420, 18F4221, 18F4320, 18F4321, 18F4331, 18F43K20, 18F43K22, 18F4410, 18F442, 18F4420, 18F4423, 18F4431, 18F4439, 18F4450, 18F4455, 18F4458, 18F448, 18F4480, 18F44J10, 18F44J11, 18F44J50, 18F44K20, 18F44K22, 18F4510, 18F4515, 18F452, 18F4520, 18F4523, 18F4525, 18F4539, 18F4550, 18F4553, 18F458, 18F4580, 18F4585, 18F45J10, 18F45J11, 18F45J50, 18F45K20, 18F45K22, 18F45K80, 18F4610, 18F4620, 18F4680, 18F4682, 18F4685, 18F46J11, 18F46J13, 18F46J50, 18F46J53, 18F46K20, 18F46K22, 18F46K80, 18F47J13, 18F47J53, 18F6310, 18F6390, 18F6410, 18F6490, 18F6520, 18F6527, 18F6585, 18F65J10, 18F65J15, 18F65J50, 18F65K22, 18F65K80, 18F6620, 18F6622, 18F6627, 18F6680, 18F66J10, 18F66J11, 18F66J15, 18F66J16, 18F66J50, 18F66J55, 18F66J60, 18F66J65, 18F66J90, 18F66J93, 18F66K20, 18F6720, 18F6722, 18F67J10, 18F67J11, 18F67J50, 18F67J60, 18F67J90, 18F67J93, 18F67K22, 18F8310, 18F8390, 18F8410, 18F8490, 18F8520, 18F8527, 18F8585, 18F85J10, 18F85J15, 18F85J50, 18F85K22, 18F8620, 18F8622, 18F8627, 18F8680, 18F86J10, 18F86J11, 18F86J15, 18F86J16, 18F86J50, 18F86J55, 18F86J60, 18F86J65, 18F86J90, 18F86J93, 18F86K22, 18F8720, 18F8722, 18F87J10, 18F87J11, 18F87J50, 18F87J60, 18F87J90, 18F87J93, 18F87K22, 18F96J60, 18F96J65, 18F97J60, 18LF13K50, 18LF14K50, 18LF25K80, 18LF26J13, 18LF26J53, 18LF26K80, 18LF27J13, 18LF27J53, 18LF45K80, 18LF46J13, 18LF46J53, 18LF46K80, 18LF47J13, 18LF47J53, 18LF65K80, 18LF66K80, 16C923, 16C924, 16F1503, 16F1507, 16F1508, 16F1509, 18F24K50, 18F45K50

ECIO-28, ECIO-40, Formula Flowcode Buggy, Locktronics PIC, MCHP_FSUSB, MIAC System, MIAC, PIC18_STARTERKIT_E14

AVR / Arduino version

Arduino BT 168, Arduino BT 328, Arduino Duemilanove 168, Arduino Duemilanove 328P, Arduino Ethernet, Arduino Fio, Arduino Leonardo, Arduino LilyPad 168, Arduino LilyPad 328, Arduino Mega 1280, Arduino Mega 2560, Arduino Mega ADK 2560, Arduino Mini, Arduino Nano 168, Arduino Nano 328, Arduino Pro 168 3V3, Arduino Pro 168 5V, Arduino Pro 328 3V3, Arduino Pro 328 5V, Arduino Pro Mini 3V3, Arduino Pro Mini 5V, Arduino Serial, Arduino Uno PDIP, Arduino Uno SMD, Arduino Mega 2560 R3, Arduino Mega ADK 2560 R3, Atmega16A, Atmega324A, Atmega328PTQFP, AT90CAN128, AT90CAN32, AT90CAN64, AT90PWM1, AT90PWM2, AT90PWM216, AT90PWM2B, AT90PWM3, AT90PWM316, AT90PWM3B, AT90PWM81, AT90S2313, AT90S2323, AT90S2333, AT90S2343, AT90S4414, AT90S4433, AT90S4434, AT90S8515, AT90S8535, AT90USB1286, AT90USB1287, AT90USB162, AT90USB646, AT90USB647, AT90USB82, , ATMEGA103, ATMEGA128, ATMEGA1280, ATMEGA1281, ATMEGA1284P, ATMEGA16, ATMEGA161, ATMEGA162, ATMEGA163, ATMEGA164, ATMEGA164P, ATMEGA165, ATMEGA165P, ATMEGA168, ATMEGA168P, ATMEGA169, ATMEGA169P, ATMEGA16M1, ATMEGA16U2, ATMEGA16U4, ATMEGA2560, ATMEGA2561, ATMEGA32, ATMEGA323, ATMEGA324, ATMEGA324P, ATMEGA325, ATMEGA3250, ATMEGA3250P, ATMEGA325P, ATMEGA328, ATMEGA328P, ATMEGA329, ATMEGA3290, ATMEGA3290P, ATMEGA329P, ATMEGA32C1, ATMEGA32M1, ATMEGA32U2, ATMEGA32U4, ATMEGA32U6, ATMEGA406, ATMEGA48, ATMEGA48P, ATMEGA64, ATMEGA640, ATMEGA644, ATMEGA644P, ATMEGA645, ATMEGA6450, ATMEGA6450P, ATMEGA645P, ATMEGA649, ATMEGA6490, ATMEGA6490P, ATMEGA649P, ATMEGA64C1, ATMEGA64M1, ATMEGA8, ATMEGA8515, ATMEGA8535, ATMEGA88, ATMEGA88P, ATMEGA8U2, , ATTINY13, ATTINY167, ATTINY22, ATTINY2313, ATTINY24, ATTINY26, ATTINY26, ATTINY261, ATTINY4313, ATTINY44, ATTINY45, ATTINY461, ATTINY48, ATTINY84, ATTINY85, ATTINY861, ATTINY87, ATTINY88, , ATXMEGA128A1, ATXMEGA128A3, ATXMEGA128D3, ATXMEGA16A4, ATXMEGA16D4, ATXMEGA192A3, ATXMEGA192D3, ATXMEGA256A3, ATXMEGA256A3B, ATXMEGA256D3, ATXMEGA32A4, ATXMEGA32D4, ATXMEGA64A1, ATXMEGA64A3, ATXMEGA64D3

dsPIC / PIC24 version

24EP32GP202, 24EP32GP203, 24EP32GP204, 24EP32MC202, 24EP32MC203, 24EP32MC204, 24EP64GP202, 24EP64GP203, 24EP64GP204, 24EP64GP206, 24EP64MC202, 24EP64MC203, 24EP64MC204, 24EP64MC206, 24EP128GP202, 24EP128GP204, 24EP128GP206, 24EP128MC202, 24EP128MC204, 24EP128MC206, 24EP256GP202, 24EP256GP204, 24EP256GP206, 24EP256GU810, 24EP256GU814, 24EP256MC202, 24EP256MC204, 24EP256MC206, 24EP512GP806, 24EP512GU810, 24EP512GU814, 24F08KA101, 24F08KA102, 24F16KA101, 24F16KA102, 24F16KA301, 24F16KA302, 24F16KA304, 24F32KA301, 24F32KA302, 24F32KA304, 24FJ16GA002, 24FJ16GA004, 24FJ32GA002, 24FJ32GA004, 24FJ32GA102, 24FJ32GA104, 24FJ32GB002, 24FJ32GB004, 24FJ48GA002, 24FJ48GA004, 24FJ64GA002, 24FJ64GA004, 24FJ64GA006, 24FJ64GA008, 24FJ64GA010, 24FJ64GA102, 24FJ64GA104, 24FJ64GB002, 24FJ64GB004, 24FJ64GB106, 24FJ64GB108, 24FJ64GB110, 24FJ96GA006, 24FJ96GA008, 24FJ96GA010, 24FJ128DA106, 24FJ128DA110, 24FJ128DA206, 24FJ128DA210, 24FJ128GA006, 24FJ128GA008, 24FJ128GA010, 24FJ128GA106, 24FJ128GA108, 24FJ128GB102, 24FJ128GB106, 24FJ128GB210, 24FJ192GA106, 24FJ192GA108, 24FJ192GA110, 24FJ192GB106, 24FJ192GB108, 24FJ192GB110, 24FJ256DA106, 24FJ256DA110, 24FJ256DA206, 24FJ256DA210, 24FJ256GA106, 24FJ256GA108, 24FJ256GA110, 24FJ256GB106, 24FJ256GB108, 24FJ256GB110, 24FJ256GB206, 24FJ256GB210, 24HJ12GP201, 24HJ12GP202, 24HJ16GP304, 24HJ32GP202, 24HJ32GP204, 24HJ32GP302, 24HJ32GP304, 24HJ64GP202, 24HJ64GP204, 24HJ64GP206, 24HJ64GP206A, 24HJ64GP210, 24HJ64GP210A, 24HJ64GP502, 24HJ64GP504, 24HJ64GP506, 24HJ64GP506A, 24HJ64GP510, 24HJ64GP510A, 24HJ64GP802, 24HJ64GP804, 24HJ128GP202, 24HJ128GP204, 24HJ128GP206, 24HJ128GP206A, 24HJ128GP210, 24HJ128GP210A, 24HJ128GP306, 24HJ128GP306A, 24HJ128GP310, 24HJ128GP310A, 24HJ128GP502, 24HJ128GP504, 24HJ128GP506, 24HJ128GP506A, 24HJ128GP510, 24HJ128GP510A, 24HJ128GP802, 24HJ128GP804, 24HJ256GP206, 24HJ256GP206A, 24HJ256GP210, 24HJ256GP210A, 24HJ256GP610, 24HJ256GP610A, STARTERKIT_24FJ256GB106, EXPLORER16_24FJ64GA004, EXPLORER16_24FJ128GA010, 30F1010, 30F2010, 30F2011, 30F2012, 30F2020, 30F2023, 30F3010, 30F3011, 30F3012, 30F3013, 30F3014, 30F4011, 30F4012, 30F4013, 30F5011, 30F5013, 30F5015, 30F5016, 30F6010, 30F6010A, 30F6011, 30F6011A, 30F6012, 30F6012A, 30F6013, 30F6013A, 30F6014, 30F6014A, 30F6015, 33EP32GP502, 33EP32GP503, 33EP32GP504, 33EP32MC202, 33EP32MC203, 33EP32MC204, 33EP32MC502, 33EP32MC503, 33EP32MC504, 33EP64GP502, 33EP64GP503, 33EP64GP504, 33EP64GP506, 33EP64MC202, 33EP64MC203, 33EP64MC204, 33EP64MC206, 33EP64MC502, 33EP64MC503, 33EP64MC504, 33EP64MC506, 33EP128GP502, 33EP128GP504, 33EP128GP506, 33EP128MC202, 33EP128MC204, 33EP128MC206, 33EP128MC502, 33EP128MC504, 33EP128MC506, 33EP256GP502, 33EP256GP504, 33EP256GP506, 33EP256MC202, 33EP256MC204, 33EP256MC206, 33EP256MC502, 33EP256MC504, 33EP256MC506, 33EP256MU806, 33EP256MU810, 33EP256MU814, 33EP512GP806, 33EP512MC806, 33EP512MU810, 33EP512MU814, 33FJ06GS101, 33FJ06GS102, 33FJ06GS202, 33FJ12GP201, 33FJ12GP202, 33FJ12MC201, 33FJ12MC202, 33FJ16GP304, 33FJ16GS402, 33FJ16GS404, 33FJ16GS502, 33FJ16GS504, 33FJ16MC304, 33FJ32GP202, 33FJ32GP204, 33FJ32GP302, 33FJ32GP304, 33FJ32GS406, 33FJ32GS506, 33FJ32GS608, 33FJ32GS610, 33FJ32MC202, 33FJ32MC204, 33FJ32MC302, 33FJ32MC304, 33FJ64GP202, 33FJ64GP204, 33FJ64GP206, 33FJ64GP206A, 33FJ64GP306, 33FJ64GP306A, 33FJ64GP310, 33FJ64GP310A, 33FJ64GP706, 33FJ64GP706A, 33FJ64GP708, 33FJ64GP708A, 33FJ64GP710, 33FJ64GP710A, 33FJ64GP802, 33FJ64GP804, 33FJ64GS406, 33FJ64GS506, 33FJ64GS608, 33FJ64GS610, 33FJ64MC202, 33FJ64MC204, 33FJ64MC506, 33FJ64MC506A, 33FJ64MC508, 33FJ64MC508A, 33FJ64MC510, 33FJ64MC510A, 33FJ64MC706, 33FJ64MC706A, 33FJ64MC710, 33FJ64MC710A, 33FJ64MC802, 33FJ64MC804, 33FJ128GP202, 33FJ128GP204, 33FJ128GP206, 33FJ128GP206A, 33FJ128GP306, 33FJ128GP306A, 33FJ128GP310, 33FJ128GP310A, 33FJ128GP706, 33FJ128GP706A, 33FJ128GP708, 33FJ128GP708A, 33FJ128GP710, 33FJ128GP710A, 33FJ128GP802, 33FJ128GP804, 33FJ128MC202, 33FJ128MC204, 33FJ128MC506, 33FJ128MC506A, 33FJ128MC510, 33FJ128MC510A, 33FJ128MC706, 33FJ128MC706A, 33FJ128MC708, 33FJ128MC708A, 33FJ128MC710, 33FJ128MC710A, 33FJ128MC802, 33FJ128MC804, 33FJ256GP506, 33FJ256GP506A, 33FJ256GP510, 33FJ256GP510A, 33FJ256GP710, 33FJ256GP710A, 33FJ256MC510, 33FJ256MC510A, 33FJ256MC710, 33FJ256MC710A, EXPLORER16_33FJ256GP710, 24FV16RA301, 24FV16RA302, 24FV16RA304, 24FV32KA301, 24FV32KA302, 24FV32KA304

Plus the following FCDs for Microchip specific boards; EXPLORER16_24FJ128GA010, EXPLORER16_24FJ64GA004, EXPLORER16_33FJ256GP710,

ARM version

AT91SAM7S128, AT91SAM7S16, AT91SAM7S161, AT91SAM7S256, AT91SAM7S32, AT91SAM7S321, AT91SAM7S512, AT91SAM7S64, AT91SAM7S64_EK, AT91SAM7SE256, AT91SAM7SE32, AT91SAM7SE512, EB031, ECIOARM

PC with Windows XP, Vista, 7, 8

Recommended: 2GHz+ processor, 1GB RAM, 700MB disk space and open GL 1.1+



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