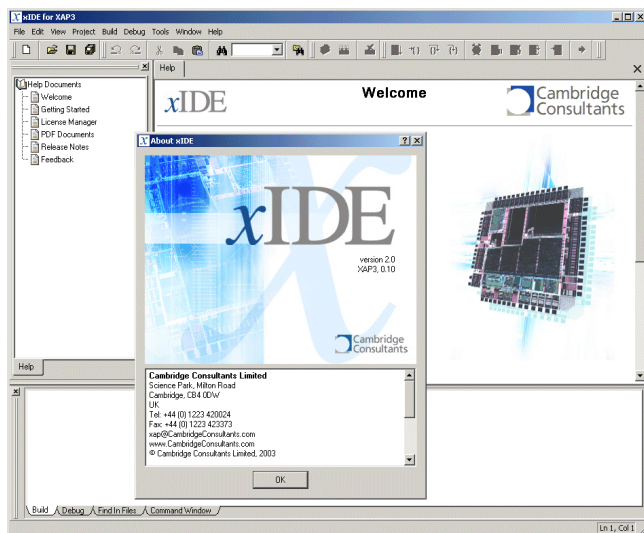# xIDE integrated development environment

xIDE is a flexible, extensible software development and debug environment for ASICs or embedded systems. It is used to build application development toolsets for ASICs that semiconductor companies can use and also distribute to their customers.

xIDE can be configured for use with any IC, FPGA, ASIC, ASSP, MCU, SoC or embedded system and can host any software toolset. Plug-in software components configure xIDE for the target's functionality. Current plug-ins offer support for 32-bit ARM, 16-bit XAP and 32-bit XAP processors and tools.

xIDE licensees can offer their own branded development tool suite, integrating tools, libraries and documentation and deliver them to users in a simple installer.

xIDE reduces support costs, brings in design wins, enhances products, and speeds time to market.

Featured for programmers

- Integrated software developer and debug tool environment

- Supports multi-core ICs, boards and multiple board systems

- Hosts instruction set simulators, debuggers, code and libraries

- Easy to use with HTML-based on-line help and documentation

- Extensible architecture through software plug-ins

- Coordinated management of files, program builds and debug

- Built-in multiple-document text editor with syntax highlighting

- Customisable docking windows, toolbars and GUI widgets for system-specific requirements

- Integrated Python command line. Python macros automate tasks and can also simulate target system functionality

- Multiple document windows for source code, browsing memory, debug output, register views, peripherals and variables watch

- ARM or XAP processor support

The ASSP software challenge

Application-specific semiconductor products are increasingly complex and companies supplying them must offer customers a program development environment enabling ASSPs to be designed in products.

Modern ASSPs contain multiple cores, processors, DSPs, hardware engines, memories, interfaces, communications and other logic. Software running on them can include a RTOS and code libraries bringing functionality to the ASSP. There is also a compile chain, debugger and other tools.

xIDE is an integrated software development environment that can be used to host all these software tools, libraries and documentation. It solves a problem for semi-conductor companies that must provide customer-facing application programming tools for their ASSPs.

xIDE is configured by software plug-ins making it aware of particular tools such as compilers and assemblers, processors such as ARM or XAP, any RTOS or software stacks and the internal circuits of an ASSP.

Time to volume

The xIDE core is extended with software plug-ins for a particular ASSP. Versions of xIDE can be branded with a company's logo and other data. Documentation and help files are added and interfaces to the accompanying tools are defined. Tools such as compilers or debuggers can be shipped within xIDE or delivered separately.

xIDE is then delivered to ASSP customers, often with a reference design board. It can be delivered on a CD-ROM or downloaded from a web site. Usage is controlled by the flexLM licence manager with fixed or floating license keys.

Companies can deliver a single out-of-box application programming environment for ASSPs that is highly managed and appropriate for a wide range of user skills. Customer support costs are minimised and users can get applications up and running quickly without undertaking complex software installations.

This significantly speeds up time to market, time to design win, and time to volume for ASSP orders.

Easy to use and extend

xIDE offers a consistent view of the ASSP-based product development process, from simulation and emulation through to prototyping, deployment and maintenance. System complexity is contained by xIDE so developers can focus on building and proving applications, reducing time-to-market and risk.

xIDE is a core application that can work with any target processor, multi-core system or even multiple systems. Software plug-ins are installed for each processor, e.g. an instruction set simulator or drivers for the target hardware.

Plug-ins interface to software build-chain tools and issue commands to compilers, assemblers, linkers and utilities. Building and debugging of multiple processors is coordinated. The plug-ins can parse compiler output, implement breakpoints and report debug information, register contents, variable values etc.

xIDE plug-ins also support Flash memory programming enabling developers to bring up a target system and run it independently. Interactive debugging and event logging facilities are provided for simulation, emulation and target hardware. Debug hardware pods and connections such as JTAG are accommodated through plug-ins interfacing to the pod drivers.

Different versions of xIDE can be built for an ASSP, e.g. to restrict users from accessing privileged mode code so they cannot corrupt the RTOS and drivers.

At Cambridge Consultants we use plug-ins for our XAP and Bluetooth development tools including GNU C compilers, processor instruction set simulators, hardware emulators and non-invasive processor core debug via serial interface SIF pods. xIDE also supports ARM 32-bit processors and tools.
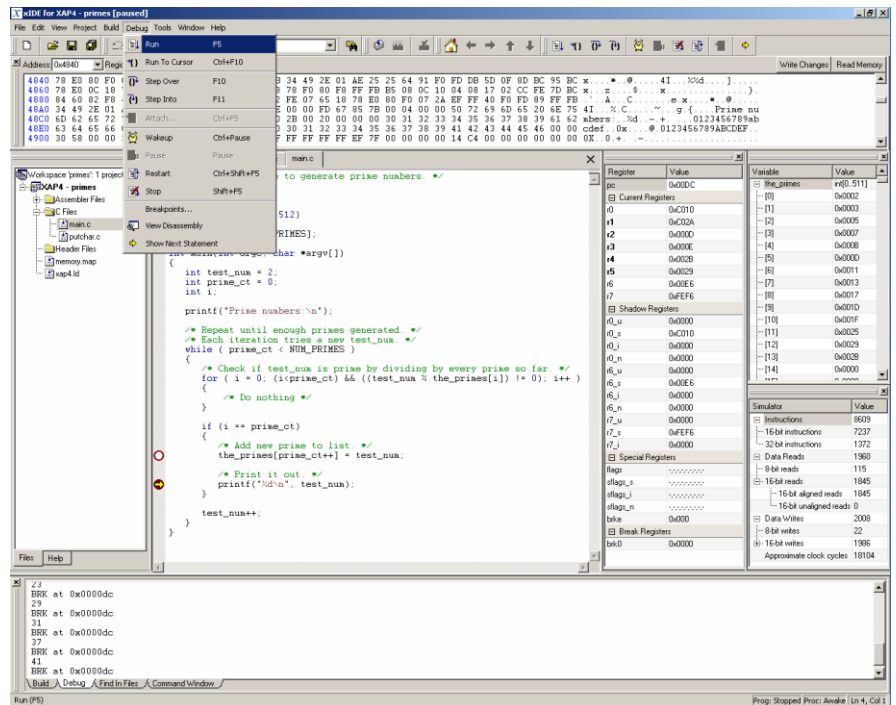
Powerful GUI

xIDE presents a standard Windows toolbar with menus configured by plug-ins as they start up. Windows are arranged by the user. Shown above, the top window contains a memory dump in hex and ASCII.

Projects are organised in work-spaces and configurable directories where software builds are made for each core with optional make files.

The main window displays source created by xIDE's programmers' editor. Syntax highlighting shows keywords, strings and comments. Arrows and bullets to the left of the source indicate debug break points. Assembler source, make files and disassembler output can also appear in the main window.

To the right is debug data such as register contents and variable values. Other windows can show the call stack, peripheral block status or an instruction count.

The output window at the bottom displays commands issued to the tool-chain. The window also shows standard output from the program.

Put your logo here

The standard xIDE for XAP products are available for Windows. Custom versions of xIDE can be made available for Windows and Linux. Companies supplying ASSPs or embedded systems can brand xIDE with their own identity.

Cambridge Consultants offers a shared work programme to develop xIDE plug-ins for an ASSP together with a licence to use the xIDE core. After development and branding, xIDE can be re-distributed under licence at a low cost per seat enabling widespread deployment.

Thousands of copies of xIDE are used worldwide at customer sites for programming Bluetooth, ZigBee and many other wireless, sensor and actuator ASSPs.

A free evaluation copy of xIDE can be downloaded from our web site.

www.CambridgeConsultants.com/xap
xap@CambridgeConsultants.com

Cambridge Consultants Ltd
Science Park
Milton Road
Cambridge
England CB4 0DW

Cambridge Consultants Inc
745 Atlantic Avenue, Floor 6
Boston MA 02111
USA

info@CambridgeConsultants.com
www.CambridgeConsultants.com

Tel: +44 (0)1223 420024
Fax: +44 (0)1223 423373

Tel: +1 617 532 4700
Fax: +1 617 532 4747