

Embedded Systems

Confidently develop embedded products for export markets

International market standards compliance

Systems developed to fit your business

ELMG's complete embedded system service package includes

- Embedded Hardware Development
- Embedded Software Development
- Integration of Hardware and Software
- Embedded System Control of Power Electronics - Digital Power Electronics
- Microprocessor choices
- DSP and FPGA
- Verification of embedded systems
- International multi market compliance for embedded systems

Embedded Systems Development - Hardware

Embedded Hardware Design

ELMG's design experience and expertise ensure the embedded platform electronics will exceed your requirements. Your key advantage is that **ELMG** develops the embedded hardware concurrent with the embedded software. Experience with hardware and software design for 8051, Texas Instruments, Analog Devices, Microchip PIC, Atmel, Motorola and other micro processors means you can be confident that your embedded systems development will be on time and will work first. All embedded hardware is designed to meet IPC standards if applicable and is designed for manufacture and test. All **ELMG** expertise in designing analogue and digital electronics is used in designing embedded hardware.

DSP, FPGA and Programmable Logic

ELMG expertise with DSP, FPGA CPLD and other programmable logic allow these technologies to be incorporated into your design if suitable and cost effective to do so.

Multiprocessor Systems

Multi processor systems are useful where embedded system applications require multifunction approaches. We have previously designed such hardware systems and developed complete applications for them.

Embedded Systems Development - Software

ELMG's embedded software philosophy is that to the end user embedded software looks like hardware. To achieve levels of confidence in embedded software, **ELMG** use good specification, partitioning, document and software version control along with robust testing and release procedures. We make sure that your embedded system is a great solution.

ELMG: Embedded Systems: expertise, experience and results



ELMG: Embedded Systems: *expertise, experience and results*

ELMG has competence and experience in programming embedded processors using C and assembly language and the two in combination on a number of microprocessors, microcontrollers and DSPs.

Design for Debug

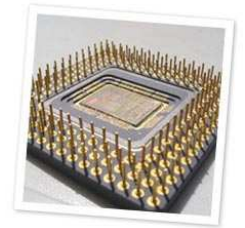
It is common that more than 40% of an embedded project's time is used in integration and debugging. **ELMG's** "design for debug" approach is the software equivalent of hardware's "design for test" or "design for manufacture". This approach ensures you increase confidence in the project while at the same time saving development costs. It also means the code is well designed for maintenance.

Embedded Systems Development Expertise

Digital signal processing

Issues such as quantisation error, signal to noise effect, sample skew, pipeline stalls and limited processing time present themselves in most digital signal processing situations. **ELMG's** solid theoretical understanding and practical understanding and experience of these digital signal processing issues means you can be confident that your embedded DSP system will be on time and will work first time.

Using DSP in control systems requires the use of digital control techniques. We have expertise in the analysis of control systems and design of DSP software to perform the control.



Which micro is right for you?

Chip manufacturers are constantly improving the performance of their products. This means that available embedded controllers, be they micro-controllers, microprocessors, DSP or programmable logic, are constantly changing. Any new product development requires a survey of the available devices with the choice being a balance between the cost of changing micros or micro families and the benefit of doing this. **ELMG's** wide with a number of micro types including 8051 Family, Zilog, Atmel, Microchip, Motorola, Analog Devices, Texas Instruments means we can advise on your microprocessor choice.

Embedded Processor Control of Power Electronics

The complete digital control of power electronic switching circuits presents some issues that are not apparent with traditional control methods. Synchronised sampling and timer accuracy are typical areas that need attention. **ELMG** are your solution provider for totally digital power electronics.

Verification of Embedded Systems

ELMG testing and verification services include verification of function and verification of system robustness using an approach that treats the embedded software as both software code and a hardware component. **ELMG** embedded software testing also includes failure mode effect and criticality analysis where appropriate.

See Frequently Asked Questions on Embedded Systems and their answers at www.elmgnz.com/faq.html

Contact **ELMG** for Embedded Systems: *expertise, experience and results*

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