MicroProcessor
Engineering Limited

PRESS RELEASE

Company: **MPE Microprocessor Engineering**   Date: 13 November 2014

Comet Landing – a triumph for Forth in Hardware and Forth in Software

From steering telescopes to steering Philae

Intersil's RTX processors and Forth software controlled the successful Philae landing

Southampton, UK – 13 November 2014 – A proud Forth Community knows that these niche processors and niche languages are sometimes the only choice, and others will re-look at Forth and it's capabilities now again.

MPE can announce, that MPE Compilers were used on this project.

It was Intersil RTX Processors running some Forth in hardware, and the Forth programming language that made it happen. Goo processor architectures do not die – they just convert into IP, and MPE can still supply the RTX2000 IP today together with the compiler Tools.

Intersil's RTX processors made sure the landing on the asteroid was successful. And up to 10 of them are working now in the Philae controlling the systems to gather data about the comet.

One additional point for using this processor was the availability in radhard – but this was the reason for Intersil to manufacture it in the first place – why else have it in radhard.

The Forth language was used to program them. A language very close to "radhard software", as the interactive programming structure combining smaller words into larger phrases speeds up programming and makes debugging easier. Certifying code is eased as well, as this language fits nicely into structure of the code. It is like writing a book: first there are letters – Machine Code, then Forth, then words combine these and combine as well words to new words and phrases. When the book is finished, the application is ready.

And the RTX is still available – some versions difficult to get but the IP in VHDL for FPGA is available from MPE today – and used in special applications.

For the inventor of Forth this landing must be quite satisfying, as he was involved in many ways:

Chuck Moore designed Forth about 45 years ago to control large telescopes as the tools available were not good enough for him.

Chuck Moore designed the Novix chip to improve speed by putting Forth words in silicon – improving speed and reducing current consumption at the same time.

Chuck Moore's Novix chip, then adapted and manufactured a series of RTX processors in radhard technology by Intersil.

And now the landing on Philae using his technology. He must be very proud about this achievement, now on his new venture with a 144 Multicore Forth processor.

We at MPE can only salute the Rosetta all the people involved and make the IP of the RTX2000 available for projects – used in FPGAs today.

END

About MPE Microprocessor Engineering

MPE is a privately held company based in Southampton UK, founded in 1981 to develop and sell software tools such as compilers, specialising in real-time embedded systems. Professional and Standard compilers are available for: ARM and Cortex-M0/M1/M3/M4, ARM/StrongARM/XScale, 386/486/Pentium, H8S, H8/300H and H8/Tiny, Coldfire, 9S12/68HC12, MSP430 and 8051. Custom implementations are available on request.

MPE also offers as hardware and software consultancy, with particular expertise in high-performance Forth systems and rapid compilation. Projects are staffed by both MPE employees and external consultants.

MPE products are used in application areas such as glass-grinding, payment terminals, vending machines, bomb-disposal and construction planning. They have been used in products all over the world and as far as comets and Mars.

Technical Information:

MPE MicroProcessor Engineering
Stephen Pelc, MD

Tel: +44 (0)23 8063 1441
Email: stephen@mpeforth.com

Web: http://www.mpeforth.com

PR Contact:

MPE MicroProcessor Engineering
Juergen Pintaske

Tel: +44 (0) 7736 70 76 74
Email: juergen@exemark/.com

Web: http://www.mpeforth.com