

Sustainable Solutions for Obsolescence Management

- ***Manufacturer of Replacement Semiconductors***
- ***Testing***
- ***Anti Counterfeit Program – Authenticare™***
- ***Die Reclamation***
- ***Long Term Storage***



*“Design, Manufacture, Assembly & Qualification of
Extended Specification Electronics Components”*

Company Profile



- **Address:** Force Technologies LTD
Ashley Crt, Henley
Marlborough, Wiltshire
SN8 3RH, United Kingdom
- **Founded:** 1986 as a Franchised Distributer
privately owned
- **Business Model:** Manufacturing Solution Provider
- **Factory:** 3.700 sqft
- **Qualifications:** ISO9001:2008
AS9100 Rev C
DSCC & MIL approved (approved manufacturing & test sites)
- **Website:** www.forcetechnologies.co.uk



“Global Network of Representatives and Distributors”

Company Markets / %

- ***Aerospace / Military – 60%***
- ***Industrial – 34%***
- ***Medical – 3%***
- ***Commercial – 3%***

Some of our key customers:

BAE SYSTEMS

NORTHROP GRUMMAN
DEFINING THE FUTURE

Honeywell

GOODRICH

 **imagination at work**

COBHAM

MBDA
MISSILE SYSTEMS

THALES

Ultra
ELECTRONICS

 **BOEING**

 **SELEX GALILEO**

Ministry of
DEFENCE

 **SELEX ELSAG**
Secure Networking Solutions
A Finmeccanica Company



Rolls-Royce

 **EADS**
DEFENCE
& SECURITY



Raytheon
LOCKHEED MARTIN

Quality

By embracing the principles and concepts of a "Total Quality Management" culture, Force Technologies recognizes the need to extend the quest for quality beyond manufacturing. Quality awareness is inherent in all aspects of our business through new test development, manufacturing, administration, sales and customer service.

FORCE is an ISO-9001:2008 certified company and gained AS9100 accreditation in April 2009.

Our testing services are in compliance with all industry standards, including JEDEC, MIL-STD-883, etc.

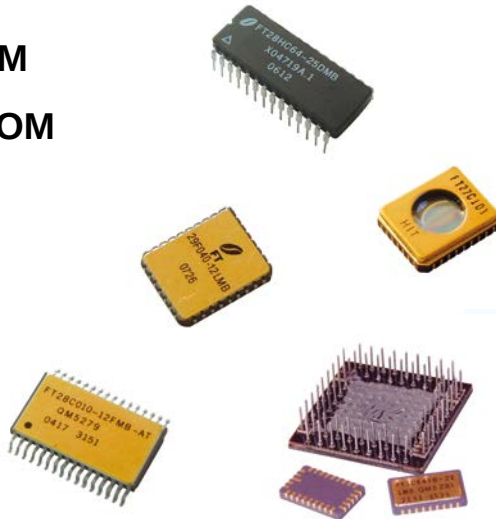
Investors in people accredited.



Manufacturing

MEMORY (Monolithic)

- SRAM
- EEPROM
- UVEEPROM
- FLASH
- SDRAM

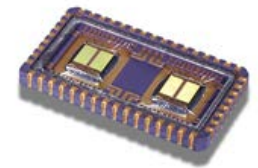


LINEAR/ANALOG

- OP Amps
- Regulators
- Comparators
- A/D – D/A convertors
- References
- Controllers

CUSTOM

- FPGA – ASIC Conversions
- MCM's
- Complete Designs – Assemblies & Custom packaging



MODULES & MCM (Multi Chip Modules)

- SRAM – Equivalent to Puma, Versapac, HIP, Stack, 3D
- EEPROM – UVEEPROM – Equivalent to Puma, Versapac, HIP
- FIFO – Equivalent to IDT, AMD, Cypress
- Mixed Technology – Equivalent to Puma, Versapac, White (WEDC)



Testing

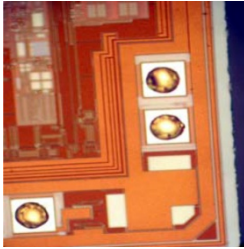
Both in-house and contract partners' test facilities, enables the use of an extensive list of testing methods & techniques to provide a comprehensive range of Electrical, and Environmental testing, for all types of semiconductors,(Microprocessors, Linear, Memory, discrete & opto devices). Clients can opt for original manufacturer-approved testing programs (where available) or tailored test programs to ensure quality assurance and fit, form, function.



Some of the services available include: -

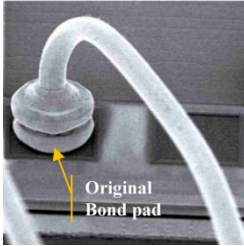
- **Manufacturer reviews**
- **Component Evaluation & Qualification**
- **Screening**
- **Failure Analysis (FA)**
- **Constructional Analysis**
- **Destructive Physical Analysis (DPA)**
- **Radiation Testing**
- **Scanning Electronic Microscopy (SEM)**
- **Scanning Acoustic Microscopy (C-SAM)**
- **Dynamic Radiographic Test**
- **Reliability Testing**
- **Electrical Characterisation**
- **Mechanical Testing**
- **Dimensions & Weight**
- **Optical Inspection**
- **Solderability Test**
- **EDS (Energy Dispersive X-Ray Spectroscopy)**
- **XRF (X-Ray Fluorescence Spectroscopy)**
- **Harsh Environment Testing**
- **Hermeticity Test**
- **Temperature Testing**
- **Terminal Strength Test**
- **Bond Pull & Die Shear**
- **Biased Burn-In, Humidity, Life test, HAST**
- **X-Ray**
- **PIND (Particle Impact Noise Detection)**

Die Reclamation



- Die-Reclamation

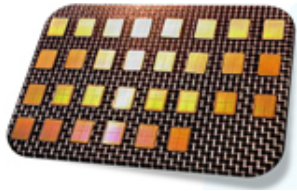
Die extraction by means of removing die from plastic or ceramic packages without the ANY damage to the Die and whilst maintaining full functionality and reliability. Capacity- from 1off to 15,000 extractions /month to be re-assembled in Plastic/Hermetic/Metal packages, as well as hybrids/MCM's or stored in Vacuum Gel packs for shipping under schedule



- Re-Assembly Assurance

Gold Wire connection adheres extremely well to the existing original gold ball bond. Meets or exceeds Mil-Std-883(H).

Die shear also meets or exceeds Mil-Std-883(H)



- Gel Pack Storage/Assembly

Store your reclaimed and inspected die in Vacuum Gel packs for assembly and test to your extended schedule. High volume is now cost effective and Extracted die can be Re-assembled using conventional, industry standard high-volume equipment to recognised Environmental QA standards in approved facilities.



- Re-Test and/or Upscreen

Re-packaged die are then tested to the original OEM device parametrics and functional specification. Should devices need to be upscreened to a higher specification and/or characterised, this can be achieved in QML conditions to custom SCD or a standard data sheet.

FPGA to ASIC Conversion

Force with its design partnership have been migrating FPGA designs to ASICs for over a decade

From companies: Actel, Altera, Atmel, Cypress, Lattice, QuickLogic, Xilinx

- Providing a pin for pin FPGA migration to ASIC**
- Integration of multiple FPGAs into one ASIC**
- Extending production support for End of Life FPGAs**

- Optional conversion approaches supported:**
 - RTL handoff**
 - FPGA Netlist handoff**

Force Xilinx FPGA Solutions

Force is able to offer multiple solutions to a vast array of obsolete Xilinx FPGA devices, ensuring continued and reliable support for the future of your application.

Upscreening

If Force has stock of the correct package and FPGA for your application and you would like it screened to an elevated temperature or faster speed. We can provide a set of rigorous up-screening tests to ensure the device functions as the customer requires. We have stock of a vast array of original Xilinx test hardware.

Die Reclamation

In situations where a compatible device footprint is not available Force can remove the die from one package and successfully reassemble the die into another package.

Force Xilinx FPGA Solutions

Recreation

If we do not have stock available to upscreen or reclaim from, Force Technologies is able recreate the obsolete Xilinx FPGA into an active and readily available FPGA.

Force begins with a pre study to flesh out the various design solutions we have available for the requested device, whilst keeping in mind the key parameters the customer requires.

In the pre-study acceptable FPGAs will be assessed and the various risks associated are explored and documented allowing the customer to make an informed decision going forwards.

Once a design solution has been decided upon we will work closely with the end customer to provide prototype devices and simulations, that allows the customer to confirm the design functions in their application before moving into production.

Force then creates a test plan to verify functionality of the devices for production lots at the required temperature and speed ranges. The devices are then fabricated, packaged and shipped to the customer ready to be dropped in as functional FFF replacement.

Space

- **Force has an established world class reputation for supplying high reliability components to the Aerospace & Defence and other harsh environment industries**
- **The skills and experience built up in component sourcing, procurement, project management, inspection, test, storage, and failure analysis directly map across to Space**
- **The Space industry requires high reliability components but these are in an increasingly short supply due to commercial cost pressures in the EEE Component Equipment manufacturers (CEM) market place**
- **The Force skill set can be directly applied to Pro-active Management and resolution of EEE Component Sourcing, which is a major problem for the Space industry.**



Parts Procurement Manager

CPPA Capability (*Central Parts Procurement Agency*)

EPPL Approved

- Whether you want to purchase a single line item or components for a complete system, by outsourcing your parts procurement to FORCE, we can help you manage the parts related risks to your project.
- We can support procurement of all types of Electronic, Electrical and Electromechanical parts.
- Schedules, Cost, Quality & Performance are the key measures of success for any Space, Aviation or Defence system.
We ensure that our customers obtain best value for money in parts procurement.

