

Faraday Technology Corporation: FPGA-GO-ASIC 2022 V1.1

Company Overview

Faraday Technology Corporation is a premier fabless semiconductor company providing leading edge solutions for customers seeking cost, size and power reduction while improving performance and reducing time to market. We achieve our customer's goals through the design, development and production of SoC (System on Chip) solutions, ASIC (Application Specific Integrated Circuits) and silicon verified IP (intellectual property).

Faraday has been acknowledged by the industry for its innovative solutions, has taped out over 2,300 successful designs, developed over 3000 silicon verified IP (intellectual property) blocks and ships over 100 million ICs annually worldwide today. Faraday ranks in the top 50 fabless IC suppliers in the world and in the top 10 in Taiwan. Faraday is the first ASIC company to achieve ISO26262 and AECQ100 certification.

Faraday has a strategic partnerships with UMC (United Microelectronics Corporation) and Samsung. Note that UMC is part owner of our company.

Faraday is a public company and is listed on the Taiwan Stock Exchange under the symbol 3035:TT. Founded in 1993 and headquartered in Hsinchu Taiwan, Faraday has offices in the USA, Europe, Japan, Korea, Vietnam, India and China. Faraday employs over 800 people world wide.

FPGA

Faraday, a leader in SOC solutions, has completed numerous FPGA conversions using a variety of techniques. Pin for Pin drop in, multiple FPGA on single die with single or multiple package bonding options, SOC + FPGA, etc., We are extremely familiar with FPGA technology and tools as we also use them in our development platforms, IP development and verification flows. Our strength lies in our ability to work seamlessly with our customers throughout the specification, development and integration phases. Customers can hand us a specification, RTL or gate level netlist and we provide you with the finished IC. Hard/soft IP, included in the FPGA, can be replicated using our large list of self developed IP and/or through our 3rd party IP partners. Typical blocks that we re-target are PLLs, ADC/DAC, SERDES, CPU/DSP, SRAM, eFlash and advanced IO.

Field Re-Configurable

Some customers require field re-configurability in their systems. Many times only a small portion of the design needs to change, leaving a large portion that is fixed. Faraday can help to separate the fixed portion into an ASIC which can greatly reduce overall system cost and power plus increase system throughput. The reconfigurable section is then moved into a lower cost FPGA or include as embedded FPGA (eFPGA) blocks within the ASIC.

Pin for Pin Replacement

Many customers request a pin for pin replacement so that the ASIC can be dropped into the exact footprint of the FPGA with no board or software changes. This is one of many solutions we offer. In addition, if you use the same FPGA & package for multiple applications (each with different codes), we can help to compile all into 1 die and use programmable switching to bring the selected code out to the package pins. Selection can be done using internal bonding when parts are ordered or externally using dedicated pins.

Faraday SOC and System in package (SIP)

Additional cost/area/power reductions are possible by integrating other system blocks, located on one or more PCBs, into a Faraday SOC. Example IP that we can integrate are: one or more FPGAs, CPUs, DSPs, SERDES and Analog. Examples of KGD (Known Good Die) from our certified suppliers include DDR/2/3/4 & Flash memories.

These blocks typically require high pin counts which eat up your board space plus require additional PCB layers to support. We can bring these blocks inside the chip, as SIP, using standard packages up through 2.5D IC. Faraday can help you with the architecture and implementation phases to determine the right approach for your design.

How to get started

Our FPGA2ASIC RFQ form can be used to help convey the information we need to make your conversion a success. Simply call or email one of our manufacturer representatives <https://www.faraday-tech.com/en/content/ContactUS/Agents> or email us directly at sales@faraday-tech.com today for more information. We will provide you with the guidance needed to seamlessly migrate your design into silicon and provide a competitive quote to allow the vision of your next IC become reality.

Typical FPGA to ASIC decision tree

