Microchip Technology

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Microchip Technology Incorporated

Type	Public
Traded as	• NASDAQ: MCHP • NASDAQ-100 component • S&P 500 component
ISIN	US5950171042
Industry	Semiconductors
Founded	1989; 31 years ago
Headquarters	2355 W Chandler Blvd Chandler, AZ 85224, USA
Key people	Steve Sanghi, Chairman & CEO J. Eric Bjornholt, CFO Ganesh Moorthy, President & COO
Products	Microcontrollers Serial EEPROMs Serial SRAM Analog ICs
Revenue	▲US$5.35 billion (2019)[1]
Operating income	▼US$707.4 million (2019)
Net income	▲US$355.9 million (2019)
Number of employees	18,286[citation needed] (2019)
Website	microchip.com

A 1988 vintage Microchip PIC16CR54 with the Apple Desktop Bus protocol pre-programmed, before they became an independent company, as used in a Macintosh SE.

Microchip Technology Inc. is an American publicly-listed corporation that is a manufacturer of microcontroller, mixed-signal, analog and Flash-IP integrated circuits. Its products include microcontrollers (PIC, dsPIC, AVR and SAM), Serial EEPROM devices, Serial SRAM devices, embedded security devices, radio frequency (RF) devices, thermal, power and battery management analog devices, as well as linear, interface and wireless solutions. Examples of these solutions include USB, zigbee, MiWi, LoRa, SIGFOX and Ethernet.

Corporate headquarters are located in Chandler, Arizona, with wafer fabs in Tempe, Arizona, Gresham, Oregon, and Colorado Springs, Colorado, assembly/test facilities in Chachoengsao, Thailand, Calamba and Cabuyao, Philippines. Sales for the fiscal year ending on March 31, 2019 were $5.35 billion.[2]

Notable products include PIC microcontrollers, MPLAB development software and hardware and PICkit for hobbyists.

Contents

History

Microchip Technology was founded in 1987 when General Instrument spun off its microelectronics division as a wholly owned subsidiary.[3] Microchip Technology became an

independent company in 1989 when it was acquired by a group of venture capitalists, and went public in 1993.[4]

In April 2009, Microchip Technology announced the nanoWatt XLP Microcontrollers, claiming the world's lowest sleep current.[5] Microchip Technology had sold more than 6 billion microcontrollers as of 2009.[6]

In April 2010, Microchip acquired Silicon Storage Technology (SST),[7] and sold several SST flash memory assets to Greenliant Systems in May that year.[8]

As of 2011, Microchip Technology ships over a billion processors every year. In September 2011, Microchip Technology shipped the 10 billionth PIC microcontroller.[9]

In August 2012, Microchip acquired Standard Microsystems Corporation (SMSC).[10] Among SMSC's assets were those it had previously acquired from Symwave, a start-up that specialized in USB 3.0 chips, and two hi-fi wireless audio companies — Kleer Semiconductor and Wireless Audio IP BV.[11][12][13]

In January 2016, Microchip agreed to buy Atmel for $3.56 billion.[14][15][16] JPMorgan Chase advised Microchip while Qatalyst Partners advised Atmel.[17]

In March 2018, Microchip acquired Microsemi Corporation (NASDAQ: MSCC). The acquisition price represents a total equity value of about $8.35 billion, and a total enterprise value of about $10.15 billion, after accounting for Microsemi’s cash and investments, net of debt, on its balance sheet at December 31, 2017.[18]

Products

Microchip develops a wide range of microcontrollers and integrated circuits (ICs), for the hobbyist and professional markets.

Microcontrollers

Microchip is widely known for their line of PIC microcontrollers, and their MCU-related product line includes:

- PIC microcontrollers
  - 8-bit MCUs - PIC10, PIC12, PIC16, PIC18
  - 16-bit MCUs - PIC24, dsPIC
  - 32-bit MCUs - PIC32MX, PIC32MZ
- Legacy Intel MCS-51 MCUs
- KEELOQ MCUs for security applications
- rfPIC MCUs for wireless sensor applications
- AVR microcontrollers
  - tinyAVR MCUs
  - megaAVR MCUs

    - AVR XMEGA MCUs
- SAM Arm-based microcontrollers and microprocessors
- Computer software
    - MPLAB IDE
    - MPLAB Xpress
    - C and C++ compilers for PIC/dsPIC MCUs
    - Code libraries for PIC/dsPIC MCUs
    - Atmel START for AVR and SAM MCUs
- Development hardware
    - MPLAB series (debuggers & programmers for professionals)
    - PICkit series (programmers for hobbyists and students)

Integrated circuits

The Microchip product line of integrated circuits include:

- Memory storage devices
    - Serial EEPROM chips
    - Serial SRAM chips
    - Serial Flash chips
    - Parallel Flash chips
    - Serial NVRAM chips
- Interface devices
    - USB controllers
    - ZigBee/MiWi controllers
    - CAN/LIN controllers
    - Ethernet controllers
- Power management devices
    - Battery charge controllers (Li-Ion, NiMH, Multi-Chemistry)
    - Power MOSFETs
    - Voltage regulators
- Motor drivers
    - PWM-based controllers
    - DC motor controllers
    - BLDC motor controllers
- Touch sensing
    - mTouch (capacitive sensor technology)
    - RightTouch (turn-key capacitive sensor technology)
    - GestIC (3D Tracking and gesture detection technology)
    - Haptics (Eccentric Rotating Mass (ERM) actuators)
- Ultrasound devices
    - Ultrasound switches
    - Ultrasound transmitters

Acquisitions

HI-TECH Software

HI-TECH Software was an Australian-based company that provides ANSI C compilers and development tools. Founded in 1984, the company is best known for its HI-TECH C PRO compilers with whole-program compilation technology, or Omniscient Code Generation (OCG).[19][20] HI-TECH Software was bought by Microchip on 20 February 2009,[21] whereupon it refocused its development effort exclusively on supporting Microchip products.[22]

Supported manufacturers and architectures :

- Microchip PIC10, PIC12, PIC14, PIC16, PIC18, PIC24, PIC32 and dsPIC
- Cypress PSoC's
- Silicon Laboratories MCUs
- 8051 MCUs
- Z80 for CP/M[23] and Z80 cross compiler.

Silicon Storage Technology

EPROM 28EE011 made by SST

SuperFlash memory chip

Silicon Storage Technology, Inc. (SST) was a Sunnyvale, California, United States, technology company producing non-volatile memory devices and related products.[24][25] SST supplied NOR flash and other integrated circuits for high-volume applications.[26]

Bing Yeh co-founded SST in August 1989, and served as its chief executive.[27]

At the 1992 Fall COMDEX trade show, SST introduced the first single-board 30 MB 2.5" solid-state drive with standard hard-disk ATA interface and a 5 MB PC Card memory card with built-in controller and firmware.[28]

In 1993, SST moved its headquarters to Sunnyvale. That same year, SST introduced its first SuperFlash technology products, with lower costs and faster write speeds. By the end of 1995, more than 90% of the PC motherboards produced in Taiwan had adopted SST's 1 Mbit SuperFlash EEPROM product for the BIOS storage.[*citation needed*] The company had its initial public offering November 21, 1995, trading on the NASDAQ market under the symbol SSTI.[29] Analytical models of SuperFlash were published.[30][31] A five-year licensing agreement was

announced in January 1999 with Acer Inc..[32] A 1997 lawsuit filed by Intel was settled in May 1999 after mediation.[33]

In 2004, SST began to diversify beyond flash memory products, targeting consumer and industrial products with embedded solid-state data storage and RF wireless communication.[34] In September 2004 SST purchased a majority stake in Emosyn, which designed products for SIM cards. In October it announced the acquisition of G-Plus, based in Santa Monica, California.[34]

In 2006, SST announced a joint development agreement with Taiwan Semiconductor Manufacturing Company (TSMC) to develop 90 nm SuperFlash technology.[35]

SST had its stock option grant practices investigated by the US Securities and Exchange Commission, ending in June 2008.[36] It determined it needed to restate earnings, and was given a de-listing notice by NASDAQ for filing late reports from 2006 through 2007.[37] Business slowed in the Great Recession. The company announced a loss on reduced revenues, reducing its workforce by 17% in December 2008.[38]

In November 2009, Technology Resource Holdings offered to acquire the company for about $200 million, but a group of shareholders thought it was undervalued.[39] Starting in February 2010, private equity firm Cerberus Capital Management and public company Microchip Technology both made offers to acquire SST.[40][41] In April 2010, Microchip completed the acquisition for about $292 million.[42][43] Microchip sold several SST flash memory assets to Greenliant Systems (founded by Yeh) in May of that year.[44]

Other acquisitions

- Atmel
- EqcoLogic
- ISSC Technologies
- Micrel
- Microsemi
- SMSC
- Supertex
- Vitesse