

RON MALTIEL

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PROFESSIONAL SUMMARY:

Mr. Maltiel is a senior member of IEEE with more than 20 years experience in all phases of design and implementation of computer semiconductor devices. He has worked in the development and production of storage technology and semiconductor devices such as Dynamic Ram (DRAM), Flash (NAND, NOR), SSD, EEPROM, ROM, and Static RAM (SRAM) memories which were used in microprocessors, logic, digital, and analog products.

Mr. Maltiel studied semiconductors at Stanford University graduate school and went on to work at Intel, AMI, AMD, and Maxim. His teams included circuit, process, and device engineers and was responsible for integrating all of the various disciplines into one working product. Mr. Maltiel holds six semiconductor device, process, and measurement patents which have been cited more than 100 times.

Currently, Mr. Maltiel is an independent consultant in the areas of semiconductor design, process and manufacturing and has been retained as an expert witness on many patent cases. In addition, Mr. Maltiel maintains an informational website and database which is regularly visited by USPTO, US Department of Justice, technology departments, attorneys, and investors from 99 countries. He is also fluent in Hebrew.

EXPERTISE:

Circuit and Process Development:

- Analog
- DRAM
- Flash / EEPROM and ROM
- SRAM
- pMOS, nMOS, and CMOS
- High voltage BICMOS

Process Steps Development:

- Process flow design
- Gate and polysilicon oxidation steps
- Cleaning steps
- Etching, deposition and planarization process steps such as Chemical Mechanical Polishing (CMP)
- Plasma and Trench etching steps
- Wafer gettering methods

Devices Development:

- DRAM memory cells
- SRAM memory cells
- Flash / EEPROM and ROM memory cells
- Precision resistors and capacitors
- Transistors/ resistors/capacitors/JFET in pMOS, nMOS, CMOS, and BICMOS processes
- Polysilicon - polysilicon capacitors
- PNP and NPN transistors

Test Chip Development:

- Created a library of test chip structures for process, ESD circuits, design rules, and device evaluation using GDS tools.
- Measured test structures and evaluated their device properties

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PROFESSIONAL EXPERIENCE

INDEPENDANT CONSULTANT, 1993 - present

- Provides consulting in various aspects of semiconductor technology and semiconductor manufacturing.
- Provides expert technical consultations and has testified at trials.
- Designs and operates a popular semiconductor technology web site which includes current developments in the digital and analog fields such as DRAM, Flash (NAND, NOR), SSD, EEPROM, ROM, and SRAM. The site includes tutorials and educational information, industry news and resources, acronym and technical word definitions, and patent search or patent application information, and is regularly visited by major technology companies and universities from 99 countries.

MAXIM INTEGRATED PRODUCTS , 1989 - 1993

- Personally developed a high voltage BICMOS device, introduced it to production, and proved the feasibility of adding an EEPROM element to it.
- Established MAXIM processes in a newly purchased fab, developed the company's newest analog process, installed MAXIM's production in a new foundry, and managed the relationship.

ADVANCED MICRO DEVICES , 1983 -1989

- Managed consolidation of test chip development through the building of a company-wide standard test chip library. As a direct result of this project, the time needed to build test chips was reduced by 60%, structures were improved, and test program generation was accelerated.
- Contributed to development of 256k SRAM, including process flow, a backend planarization scheme, and overseeing the building of generic test chip library.
- Participated in defining 1M CMOS DRAM memory and proved feasibility of integrating trenches in the process. Coordinated the development of post groove planarization process and double poly module. The project ended successfully with a working first silicon.
- Developed and proved feasibility of integrating EEPROM with DRAM CMOS process and devices. Reduced cell size by 40%, process steps by 15%, and improved EEPROM programming operation.

AMERICAN MICROSYSTEMS, INC., 1982 - 1983

- Introduced and established the EEPROM device. Directed the design of the test chip, process flow determination, manufacture of several working runs and measurement of the electrical parameters.
- Created a new process approach that improves poly dielectric strength and founded a new cell structure with multiple benefits over existing cells.

INTEL , 1980 - 1982

Participated in the development of EEPROM technology with particular emphasis on the reliability aspects such as charge retention and cycling endurance. Work involved the study of failure mechanisms, making the necessary process changes, and evaluating the results. Regular interaction with fab and technology development was required. Improved operator utilization by 20%.

STANFORD UNIVERSITY , 1978 - 1980

- E.E. research group on metallic impurities and their electrical behaviors.
- Independent research included manufacturing of Si devices and electrical measurements of their properties.

EDUCATION

Engineer Degree, Material Science Engineering, Stanford University, 1980

MS, Material Science and Engineering, Stanford University, 1978

BS, Material Science and Engineering, Ben-Gurion University, 1977

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PATENTS

Mr. Maltiel's patents have been cited more than 100 times

- Electrical measurements of profile of semiconductor devices during their manufacturing process - #4,978,923
- Method and apparatus for non-destructive data in a shadow memory array - #4,716,552
- Electrical measurements of properties of semiconductor devices during their manufacturing process - # 4,956,611
- Memory cell providing simultaneous non-destructive access to volatile and non-volatile data - #4,672,580
- Non-volatile dynamic ram cell - #4,611,309
- Gold-doped IC resistor region - #4,432,008

PROFESSIONAL AFFILIATIONS

IEEE Senior Member

IEEE Device Society

IEEE Circuits Society

IEEE Communications Society

IEEE-USA Consultants Database

Jewish High Tech

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LITIGATION RELATED EXPERIENCE

Expert Engagements

Type of Matter: Patent Infringement
Law Firm: Vinson & Elkins LLP
Case Name: Round Rock Research vs. **Sandisk Corp.**
Services Provided: Testifying expert and technical consultant on 9 patents relating to the manufacturing and operation of semiconductor memory in a system. Wrote invalidity and exhaustion declarations, was deposed, prior art searches, and analyzed patent infringements and validity. Five of the patents were dropped from the case following my declarations. Plaintiff withdrew case prior to trial.
Date: 2013 – 14

Type of Matter: Patent Board Declaration
Law Firm: Oblon, Spivak, McClelland, Maier & Neustadt, L.L.P
Case Name: NXP B.V. vs. **Research In Motion**
Services Provided: Prepared declarations for the Patent Board Patent Trial and Appeal Board of the US Patent and Trademark Office regarding semiconductor development and manufacturing.
Date: 2013 - 14

Type of Matter: Patent Infringement
Law Firm: Undisclosed
Case Name: Undisclosed
Services Provided: Technical consultant regarding semiconductor development and manufacturing. Prior art searches, analyze patents infringement and validity.
Date: 2012 – 13

Type of Matter: Patent Infringement
Law Firm: Agility IP Law, LLP
Case Name: Keranos vs. Analog Devices
Services Provided: Technical consultant regarding semiconductor non volatile memory devices, wrote declarations, was deposed, analyzed patents infringement and validity.
Date: 2012 – 13

Type of Matter: Patent Infringement
Law Firm: Undisclosed
Case Name: Undisclosed
Services Provided: Technical consultant regarding semiconductor Flash and DRAM memory circuits, prior art searches, analyze patents infringement and validity.
Date: 2012

Type of Matter: Patent Infringement
Law Firm: Barnes & Thornburg LLP
Case Name: **Creative Integrated Systems** vs. Nintendo
Services Provided: Testifying expert and technical consultant for the operation of semiconductor memory in a system. Wrote declarations, was deposed and testified in court.
Date: 2010 - 13

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Type of Matter: Patent Infringement
Law Firm: Duane Morris LLP
Case Name: **e.Digital** vs. Pentax
Services Provided: Testifying expert and technical consultant for the operation and storage of Flash memory in a system. Analyzed the product and prior art searches, reviewed patent file wrapper, and was deposed. Patent reexamination evaluation.
Date: 2009 - 11

Type of Matter: Antitrust
Law Firm: Susman Godfrey LLP
Case Name: **Tessera Technologies** vs. Hynix Semiconductors case no. 1-06-cv-076688
Services Provided: Testifying expert and technical consultant for the operation of DRAM memory system. Analyzed company's methodologies of bringing new technology to the market and prior art searches, reviewed depositions, was deposed;
Date: 2009 - 11

Type of Matter: Patent Infringement
Law Firm: Undisclosed
Case Name: Undisclosed
Services Provided: Computer system testifying expert, technical consulting, prior art searches, analyze patents infringement and validity.
Date: 2008 - 9

Type of Matter: Patent Infringement
Law Firm: Munger, Tolles & Olson LLP
Case Name: Hynix vs. **Rambus**
Services Provided: DRAM Memory testifying Expert, technical consulting for Rambus. Was deposed and provided expert report. Witness testimony provided in March 2008. Rambus won the case on all claims. Jury stated they found Mr. Maltiel the more believable expert.
Date: 2007 - 8

Type of Matter: Patent Infringement
Law Firm: White & Case LLP
Case Name: Hynix vs. **Rambus** - European Commission in Brussels, Belgium
Services Provided: DRAM Memory testifying Expert, technical consulting, provided expert report.
Date: 2007 - 8

Type of Matter: Patent Infringement
Law Firm: Undisclosed
Case Name: Undisclosed
Services Provided: Non volatile memory expert consultant, patent infringement analysis, and preparation for expert witness testimony
Date: 2006

Type of Matter: Wrongful Termination
Law Firm: Jordan Kushner

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Case Name: Undisclosed
Services Provided: Evaluate quality of technical work in case where employee was fired. Was deposed and provided expert declarations
Date: 2003

Type of Matter: Patent Infringement Matters (3)
Law Firm: Venable Baetjer
Case Name: **Patent Enforcement Fund** vs. NEC
Services Provided: Semiconductor memory expert consultant, technical consultant, develop trade secret violation list, prior art searches, analyze patent's infringement and validity. Provided several expert reports and declarations. Deposed for several days
Date: Approximately 3 separate cases various dates between 1993 and 1995

Consulting Engagements

Type of Matter: Patent Infringement
Law Firm: Fish and Richardson
Case Name: Undisclosed
Services Provided: Expert consultant and prior art searches of ESD circuits
Date: 2007

Type of Matter: Patent Infringement
Law Firm: Townsend and Townsend
Case Name: Undisclosed
Services Provided: Expert consultant and prior art searches of EEPROM memory
Date: 2006

Type of Matter: Patent Infringement
Law Firm: Undisclosed
Case Name: Undisclosed
Services Provided: Non volatile memory device expert consultant, technical consulting, and preparation for Expert Witness testimony
Date: 2006

Type of Matter: Theft of Trade secrets, Patent Infringements
Law Firm: Paul Hasting
Case Name: Undisclosed
Services Provided: Expert consultant, prior art searches, analyze patents.
Date: 2004

Type of Matter: Patent Infringement and Theft of Trade Secret Matters
Law Firm: Heller Ehrman LLP
Case Name: **Atmel** vs. ISD

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Services Provided: EEPROM device and circuits expert consultant, technical consultant, develop trade secret violation list, prior art searches, analyze patent's infringement and validity, EEPROM circuits infringement analysis, mask layers evaluation, ESD structures analysis. For several years worked full time as an outside expert on various EEPROM and other cases.

Date: Approximately 6 separate cases various dates 1995 to 2000