



## IBM's verification tools enable new partner Mellanox to produce the first ever 10Gb/s InfiniBand™ silicon chips

### **Agreement announced between IBM and Mellanox which includes tools, cash, and equity**

**HAIFA, ISRAEL, (May 02, 2001)—(IBM Research, Mellanox Technologies)**-IBM and Mellanox Technologies today announced an agreement where IBM will license its advanced verification tools and verification know-how to Mellanox Technologies for use in production of the first ever silicon-based InfiniBand chips to support 1X (2.5 Gb/s) and 4X (10Gb/s) links. Advanced verification tools from the IBM Research Lab in Haifa have proven to be key components of Mellanox's successful delivery. The value of the deal totaled \$3.6 million, and comprised tools, cash, and equity.

"With access to IBM's state-of-art Formal Verification tools and verification intellectual property, we were able to get our chips out the door cleaner, faster, and within budget," said Eyal Waldman, CEO of Mellanox Technologies. "I do not believe any other startup company has been as aggressive as Mellanox in the deployment of Formal Verification. This has given Mellanox a definite competitive advantage."

According to Yossi Malka, Senior Manager at the IBM Research Lab in Haifa, "IBM's willingness to pursue new business models with industrial partners led to this cooperative relationship between IBM and Mellanox, a clear win for both companies."

IBM is providing Mellanox with a number of advanced verification technologies, among them RuleBase Premium, a world class verification tool developed by the Formal Verification Group at IBM Haifa. Verification, critical to the successful design of any chip, comprises a substantial portion of overall development costs. Formal Verification is a method that automatically determines whether the design of a chip complies with its architectural requirements and specification. The result of the Formal Verification process is a certification that the chip correctly performs the desired function, or an indication that the chip failed to abide by the specification -- in other words, the tool has detected that the design has bugs. This technology is a breakthrough in detecting bugs early in the design process and in providing a greater level of confidence in the design's functionality.

As a part of the agreement, Mellanox will also gain access to new formal verification technologies from IBM. One such technology is referred to by IBM as "a design exploration technology". This technology is embodied in a design tool called "PathFinder", where chip designers can rapidly detect faults in their design, with a very short learning curve.

Mellanox recently introduced the first product family of InfiniBand devices supporting 2.5 gigabit per second and 10 gigabit per second operation that are interoperable with silicon from other suppliers. The family of products includes Switches, Host Channel Adapters (HCAs), and Target Channel Adapters (TCAs). InfiniBand is a new architectural standard that offers high performance, scalability, and RAS (Reliability, Availability, and Serviceability). The new Mellanox products will enable system vendors to migrate from PCI to InfiniBand architecture without losing their investment in legacy technology.

IBM, the world's leading manufacturer of servers and ASICs, is known to have verification tools with capacities exceeding those that can be typically licensed from commercial EDA vendors. Many of the verification tools used by IBM, and most of IBM's Functional Formal Verification tools, are developed by the IBM Haifa Research Laboratory. Among these tools is RuleBase, the corporate IBM verification tool. RuleBase is used across IBM server products and by a group of non-IBM licensees which work with IBM. For more information on RuleBase, visit

[http://www.haifa.il.ibm.com/projects/verification/RB\\_Homepage/](http://www.haifa.il.ibm.com/projects/verification/RB_Homepage/)

## About the IBM Research Lab in Haifa

R&D projects are being executed today by IBM Research Lab in Haifa (HRL) for 20 labs in the USA, Canada and Europe, in areas such as operating systems, distributed computing, verification technologies, optimization techniques, system availability, computer communication, programming languages, multimedia, mathematical models and applications, and e-business and security. For more information, visit

<http://www.haifa.il.ibm.com>

## About Mellanox Technologies Ltd.

Mellanox, a fabless design company located in Israel, is a leading Infiniband semiconductor supplier, providing switches, Host Channel adapters (HCAs) and Target Channel Adapters (TCAs) to the server, communications, and data storage markets. The company's business operations, sales, marketing, and customer support are headquartered in Santa Clara CA. The design, engineering, software, system validation, and quality and reliability operations are based in Yokneam, Israel. For more information on Mellanox, visit [www.mellanox.com](http://www.mellanox.com).

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