

## Powering Semiconductor Production at UMC

The semiconductor business is in constant change. Technologies continue to become more sophisticated. Geometries continue to shrink. Nothing is constant. Nothing, that is, except the need to consistently meet customers' expectations for the highest quality products in ever-shortening delivery times. To do this requires developing the most reliable manufacturing processes based on facilities and equipment that deliver the highest availability.

For United Microelectronics Corporation (UMC), a leading, full-service semiconductor manufacturer based in Taiwan, this means executing a meticulously planned manufacturing strategy. A key element in this strategy is reliable power. The foundation for reliable power is a massive configuration of 200 Powerware® 9315 Uninterruptible Power Systems (UPSs) supplied through Tally Electronic Corporation, the Powerware distributor for Taiwan. The UPSs, which range from 100 kVA to 500 kVA, support the 8" wafer and chip foundry for the \$12.6 billion dollar company.

The Powerware 9315 UPS systems feature double conversion on-line technology and are designed and built for mission-critical applications. The double conversion technology completely isolates the load from spikes, surges and sags in the incoming power. These UPS systems are equipped with an LCD display that supports multiple languages and are available in models that accept various input voltages, making them suitable for applications worldwide.

In the 9315, the availability and serviceability of the system are further enhanced through Powerware Hot Sync®, a patented paralleling technique that enables each UPS module to synchronize and support the load independent of the other. Also contributing to the industry-leading reliability is a design with a low component count and only four printed circuit boards (PCBs). By using Digital Signal Processing (DSP), the UPS control logic is executed via software instead of hardware for much of the functionality. By using this and other innovative techniques, Powerware's engineering team easily surpassed other typical Uninterruptible Power Systems that can have 17 or more PCBs and many discrete hardware components. With each additional PCB the chance of a failure increases. The Powerware 9315 also has redundant fans and control power supplies, further enhancing reliability.

Every 9315 comes complete with a rich set of features for management, monitoring and control. Battery management is easy, with DC Expert™ providing battery time indication and automatic battery tests. Also, through Remote Notify, key personnel can be alerted to over 100 alarm conditions. This rapid warning provides critical time to take necessary action.

*"The Semiconductor Business is highly competitive in terms of cost, quality and delivery lead-time.*

*For these reasons we build our production plants with facilities that provide the highest availability... as high as 99.99%.*

*The Uninterruptible Power System is a critical component in the overall power strategy we use to ensure precise attainment of our manufacturing availability goals," said Mr. Larry Lai, Senior Manager – Facilities and General Supplies Purchasing Department, Operation Support Division of United Microelectronics Corporation. " We are pleased that we have met our power availability goals through the use of the Powerware UPSs and other carefully selected components of our infrastructure."*

# customer profile



*Mr. Roger Chung (Left), Director of the Operation Support Division for UMC, presents an award for Outstanding Contribution and Long Term Support to Mr. Steve Huang, Sales Manager for Tally Electronic Corporation.*

Planning and deploying this many UPSs takes teamwork. Mr. Lai and his supervisor, Mr. Chung, Director Operations Support Division, work closely with Mr. Lloyd Chang, General Manager of Tally Electronic Corporation, distributor for Powerware in Taiwan, and his associates, not only for exact specification and installation of the UPS but also for service. Also providing support is Powerware Corporation. This effort is managed by Mr. Adam Tsoi, Area Sales Manager, and his group.

"In summary, we have experienced superior system performance, as well as, pre and post sales support by Tally Electronic Corporation that exceeded our expectations. We are pleased with the solutions that the Powerware team has provided. This has eased our concerns regarding reliable power," said Mr. Lai.

With UMC's emphasis on meeting customer requirements through development and implementation of a manufacturing process that provides the highest availability, there is no doubt that the company will continue to be a leading semiconductor provider well into the 21st century.

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