

# Micrel Semiconductor & Cypress Systems

## “Solving Problems One Gauge At A Time”

# Some of the challenges in our mature fab

- **A fab constructed in the 80''s manufacturing today's technologies at class one levels**
- **The facility has the capacity of 30k 150mm wafer starts/month**
- **The manufacturing facility utilizes over 500 processing tools**
- **Vintage 80's process tools to process tools of today**
- **In excess of 500 process pressure monitors spread out threw the facility**
- **Pressure monitored twice a day manually**
- **Minimal automation installed in facility**

# Become more efficient

- **Man hours wasted per year doing manual gauge monitoring = 2792**
- **Monitoring consumes @ 8 hours/day x 349 working days**
- **The tech needs to cover about 72k sqft of fab and facility pads to take readings**
- **Readings includes facility supplies, IE CDA, N2, process cooling water flow, temperature and pressure**
- **Readings also include a little over 300 process gas cylinders measuring pressure and weight**
- **Readings for vacuum pump exhaust are also taken**

# A current day solution for an old fab problem

- **Need to automate monitoring**
- **Solution needs to be cost effective**
- **It needs to be reliable**
- **Has to be non-evasive**
- **Solution must be user friendly**
- **Zero fab downtime associated with installation**
- **Does not introduce any hazard or damage equipment**
- **Must be able to produce data automatically**
- **Solution must prevent failures**

# Enter Cypress Systems

- **Installation of Cypress Systems “Wireless Gauge Solution”**
- **Old analog gauges with a digital look and output**
- **Clamp on non-evasive wireless gauge readers**
- **Installation of wireless transducers on cylinder scales**
- **Automated data collection and monitoring (Real Time)**
- **Web based viewing from any online pc**
- **Automated alarm notification thru pager or cell phone**
- **Able to view history as well as current readings**

# Enter Cypress Systems Cont

- **Micrel installed 100 wireless readers on process gas cylinders**
- **Micrel installed 50 wireless readers on the facility supplies**
- **100 manual inspections where eliminated**
- **24 items that were not previously monitored were added**
- **Techs were trained in using the system in about an hour**
- **Labor to do monitoring was reduced by 50%**
- **No production was interrupted by the installations or training**

# Enter Cypress Systems Cont

- **Calculated pay back is less than 1 year on labor only**
- **System has already prevented a CDA failure that manual inspections would have missed**
- **Expect to run process gas cylinder 10-15% longer due to real time monitoring**
- **System has reduced gas bottle reading errors by removing “old and tired eyes”**
- **Gas bottles no longer being changed with 1/3 product left in them because they could be close to change out**
- **System allows for high and low limits and alarm notification to users**

# Cypress Systems- Micrel Is Very Pleased

- **Micrel is now proactive in regards to monitoring gases and facility systems**
- **Micrel is able to be efficient with their labor**
- **Micrel is able to monitor with disrupting production**
- **Installation of the product created no hazards or damaging equipment**
- **System is preventing failures from occurring because of the “Real Time Data”**
- **System supports future benefits for process engineering and process control**
- **Micrel will continue to purchase and install Cypress Systems Wireless Gauge Readers**