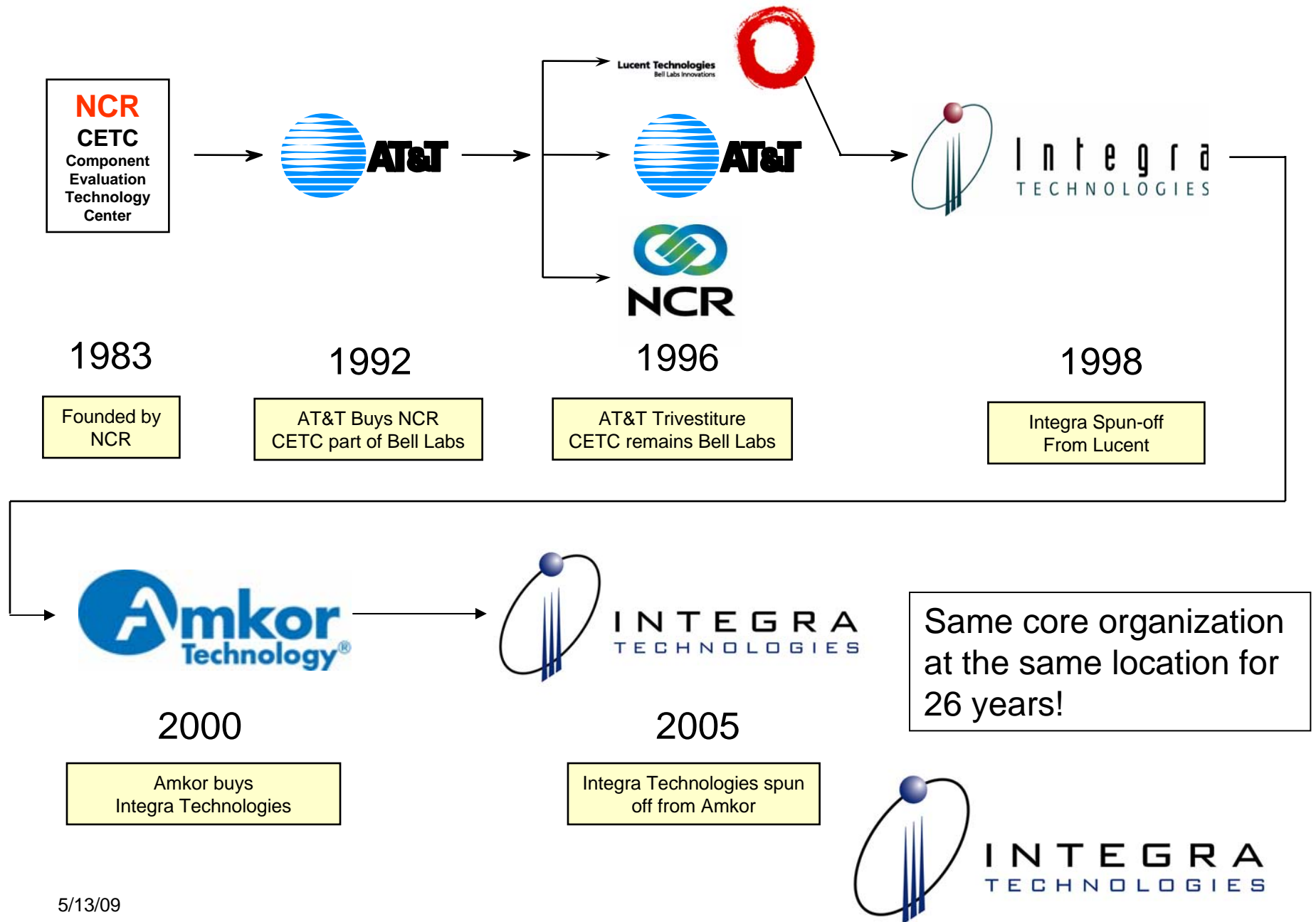


INTEGRA
TECHNOLOGIES



Integra Technologies History



Integra Overview

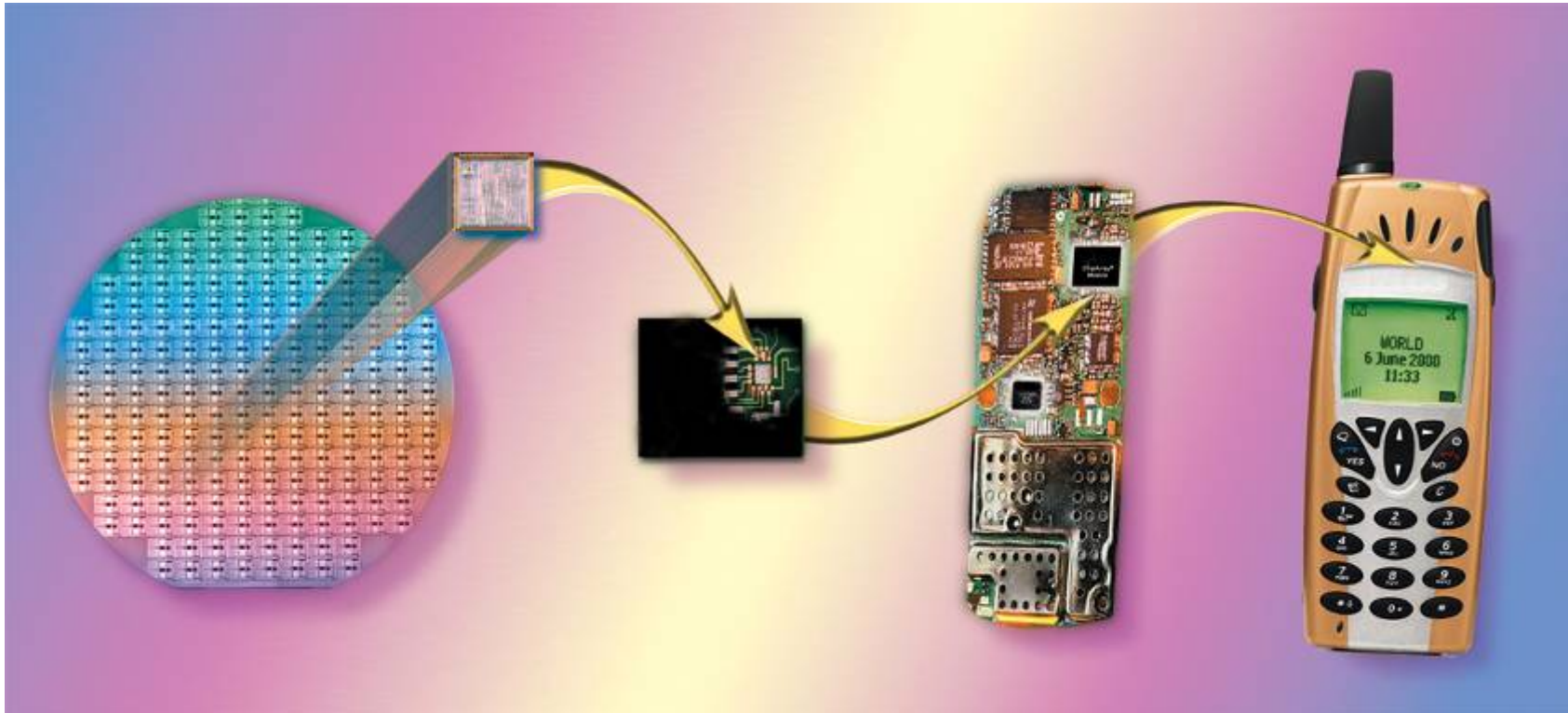
- **Test Facilities in Kansas and California**
- **26 Year History as a Testing Lab**
- **24 Hours/Day x 7 Days/Week Operations**
- **130 Employees, 21 Test Engineers & 33 Testers**
- **Engineering expertise in every semiconductor technology**
 - Over 10,000 test programs developed
- **300 Active Customers**
- **Operations are ISO-9001, AS9100, DSCC & ITAR Certified**
- **On-Time Delivery Performance of 96%**
- **Customer Satisfaction Rating of 97%**



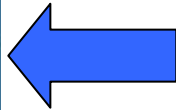
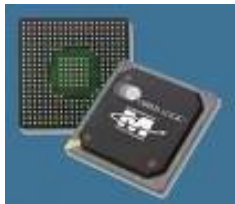
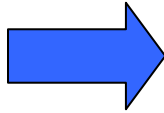
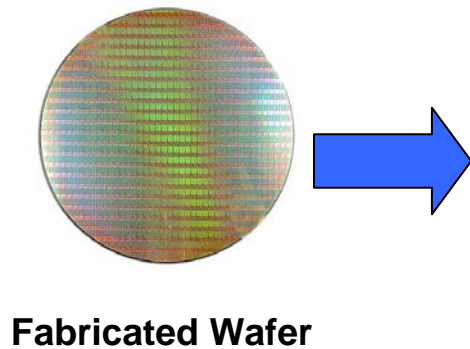
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Our Business

We test devices to ensure quality semiconductors . . .
. . . Reach the system level.



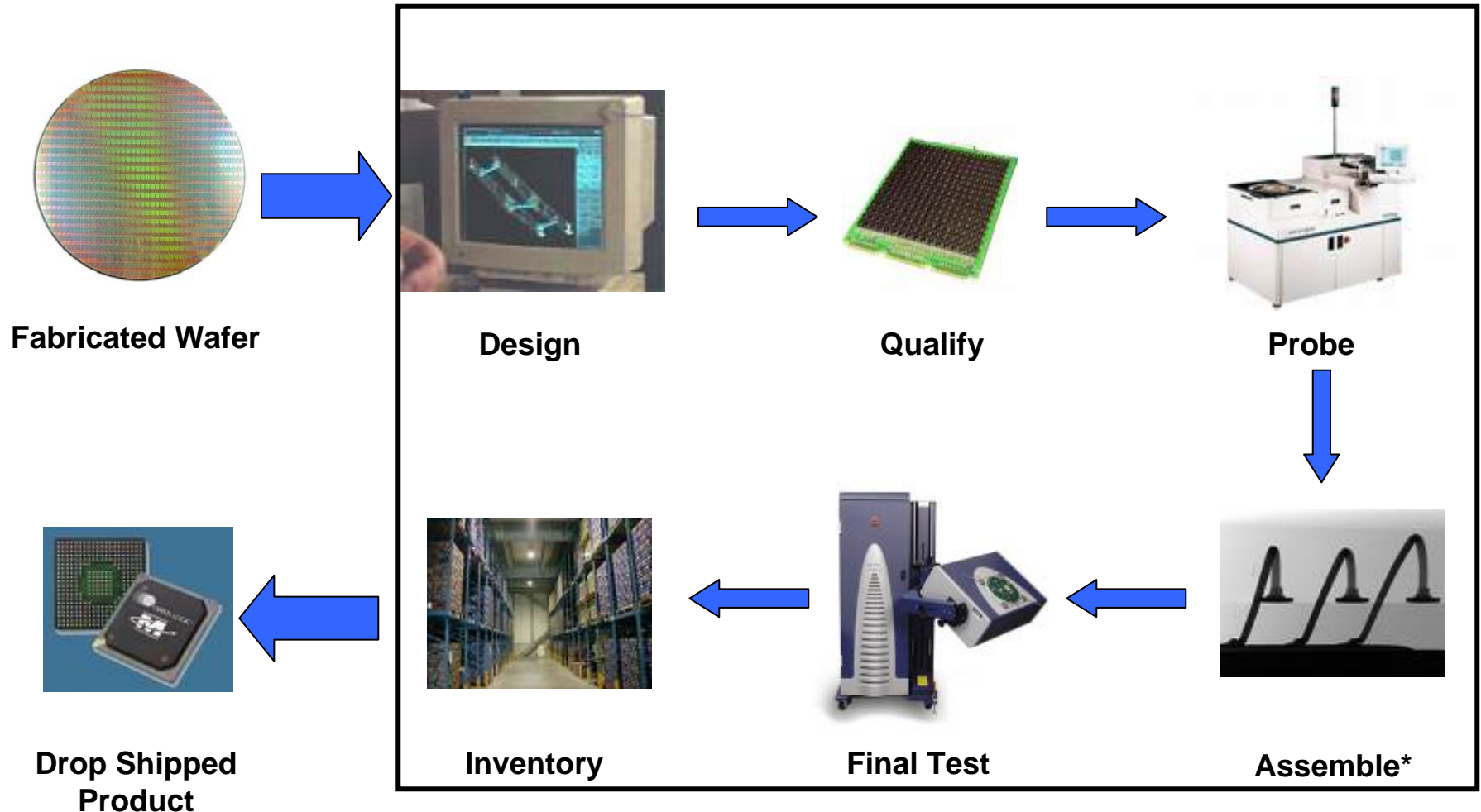
One Single Simple Interface



Drop Shipped Product



A Full Suite of Production Services



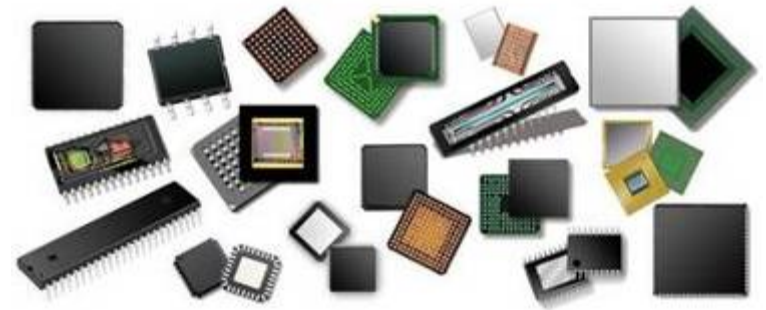
* Assembly outsourced in the US or Asia



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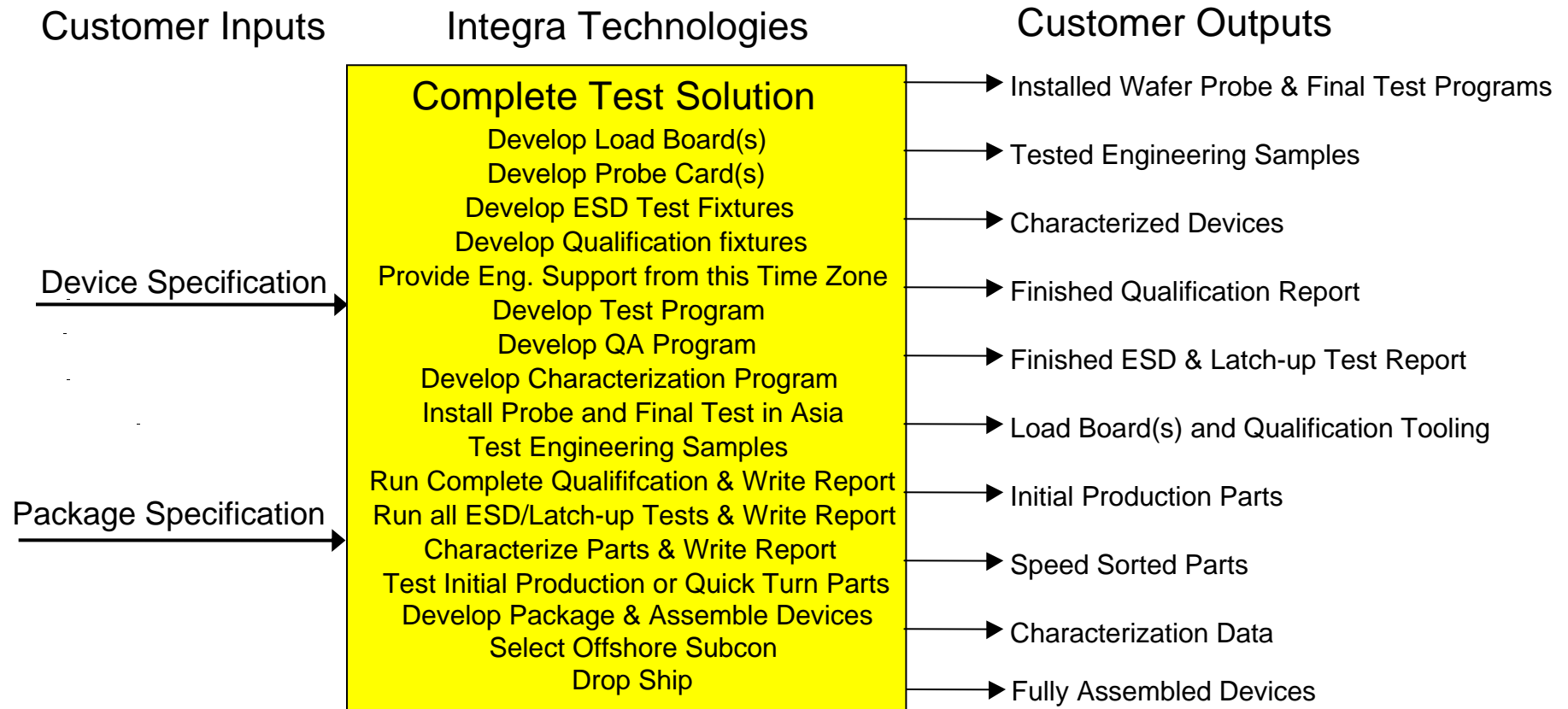
Integra Semiconductor Test Services

- Test Software Development (US based)
 - Digital
 - Mixed Signal
 - RF
 - Analog
 - Memory
 - Logic
- Package Test & Wafer Probe
 - * ***Supporting all package styles***
- Custom Test Processing & Flows
 - Temperature Testing
 - Military -55C to 125C
- Counterfeit Parts Detection
- Burn-In
- Qualification Testing
 - HTOL, HAST, T/C, ESD & Other Tests
- Scan, Tape & Reel, Dry Pack & Drop Ship
- Assembly & Test Turnkey



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A Full Suite of Development Services



Integra Test Development Expertise

Extensive Experience with Complex Test Development

- **21 Test Development Engineers**
 - 13 years average experience
 - Almost no turnover
- **Digital & Mixed Signal Devices – High End Devices**
 - Microprocessors, DSP, Microcontroller, Graphic Engines
 - Communications (Ethernet, DSL, Base Band, Networking)
 - Consumer (Games, Digital Audio, Digital TV, Set Top Box)
 - System-On-a-Chip (SOC), High Performance ASIC
- **Linear - Experience with All Linear Types**
 - DAC, ADC, OpAmps, Comparators
 - Switches, Multiplexers, Interface, Discrete's, Arrays
- **Memory - All Major Memory Technologies**
 - SDRAM, DDR, SRAM, SSRAM
 - FLASH, EEPROM, EPROM, Serial
- **Logic - Experience In Every Major Logic Family**
 - 74xxx, 16/32-bit, ECL
- **RF – 6 GHz Capability (expandable to 20 GHz)**
 - PA, LNA, Filter, Mixer, Digital TV
 - Wireless LAN, Bluetooth



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Integra Test Development Expertise

| Engineer | Years | Location | Area of Expertise | 93/83K | RF Rack | Quartet | J750 | Mav | SC212 | STE | Trillium | Sentry | J937 | Xincom | LTX88/90 | MCT2020 | ASL-1000 | ASL-3000 | Burn-In | ESD |
|-------------|-------|----------|----------------------|--------|---------|---------|------|-----|-------|-----|----------|--------|------|--------|----------|---------|----------|----------|---------|-----|
| Engineer 1 | 24 | Wichita | Digital/Mixed Signal | X | | X | X | | | X | X | | | | X | | | | | |
| Engineer 2 | 25 | Wichita | Digital/Mixed Signal | | | | | | | | X | X | | | | | | | | |
| Engineer 3 | 29 | Wichita | Memory/Digital | X | | | X | X | | X | | | X | X | | | | | | |
| Engineer 4 | 18 | Wichita | Memory/Digital | | | | X | X | | | | | X | X | | | | | | |
| Engineer 5 | 18 | Wichita | Digital | | | | X | X | | | X | X | | | | X | | | | |
| Engineer 6 | 21 | Wichita | Digital/Mixed Signal | X | | | X | | | X | X | | | | | | | | | |
| Engineer 7 | 16 | Wichita | Digital/Memory | | | | X | | | | X | | X | X | | X | | | | |
| Engineer 8 | 2 | Wichita | Mixed Signal | | | | | | | | | | | | X | | X | | | |
| Engineer 9 | 22 | Wichita | Mixed Signal | | | | | | | | | | | | X | | X | | | |
| Engineer 10 | 11 | Wichita | Mixed Signal | | | X | | | | | | | | | X | | X | X | | |
| Engineer 11 | 27 | Wichita | RF/Mixed Signal | | X | | | | | | | | | | | | X | X | | |
| Engineer 12 | 4 | Wichita | RF/Mixed Signal | | X | | | | | | | | | | | | X | X | | |
| Engineer 13 | 16 | Wichita | Digital/Mixed Signal | | | | | | | | | | | | | | | | X | |
| Engineer 14 | 9 | Wichita | Digital/Memory | | | | | X | | X | X | | X | X | | | | | X | |
| Engineer 15 | 2 | Wichita | Digital/Mixed Signal | | | | | | | | X | | | | X | | X | X | | |
| Engineer 16 | 10 | Wichita | Digital/Mixed Signal | X | | | X | | X | X | X | | | | | | | | | |
| Engineer 17 | 9 | Wichita | RF/Mixed Signal | | | | | X | | | | | | | X | | X | X | | |
| Engineer 18 | 3 | Wichita | Mixed Signal | | | | | | | | | | | | | | X | | X | |
| Engineer 19 | 6 | Wichita | Digital/Mixed Signal | | | | X | X | | | | | | | X | | X | X | | |
| Engineer 20 | 25 | Wichita | RF/Mixed Signal | | X | | | | | | | | | | X | | X | X | | |
| Engineer 21 | 13 | San Jose | Digital/Mixed Signal | | | | | | | | | | | | | | | | | X |
| Engineer 22 | 3 | San Jose | Digital | | | | | | | | | | | | | | | | | X |
| Total: 22 | | | | 4 | 3 | 2 | 8 | 6 | 1 | 5 | 8 | 2 | 4 | 4 | 7 | 3 | 10 | 7 | 3 | 2 |

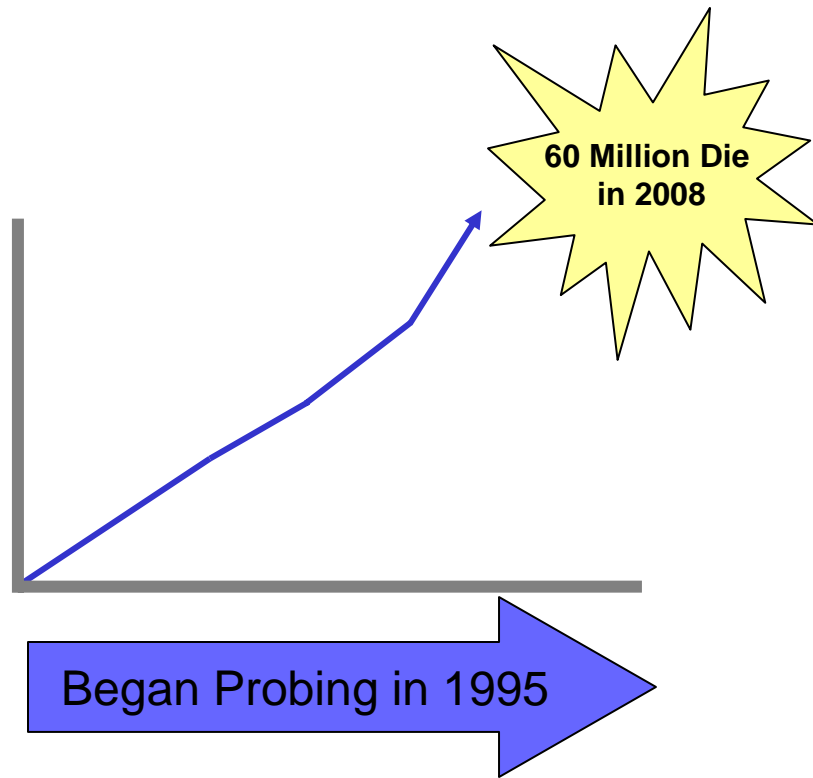
- Average of 14 years of experience per engineer
- All engineers are Integra employees
- All engineers have done substantial *from scratch* development

5/13/09



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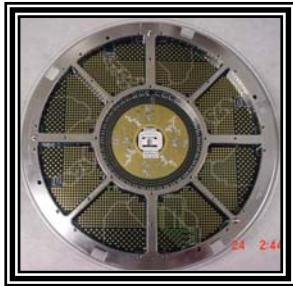
Wafer Probe



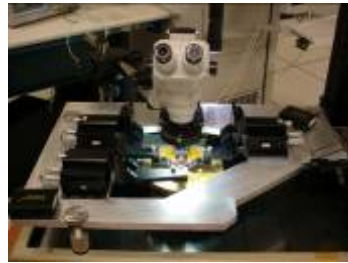
- 3 to 12" capability
- Probe card design, fab and verification
- Bumped probe
- Al, Au pads and Pb, Pb free bumps
- Vertical, Cantilever & Membrane probe
- High pin count, fine pitch

- N2 and vacuum wafer storage
- Elevated probing up to 200C
- Data analysis capability
- Handle wafers back grind to 6 mils
- High Z force chuck

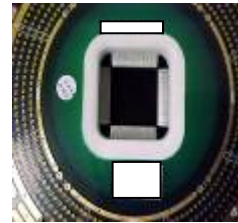
One stop shop for your probe card design,
fabrication, verification & production needs!



Design / Fab
10 Day Lead Time



Debug

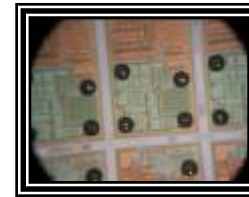


High Count
Fine Pitch



Multi Site

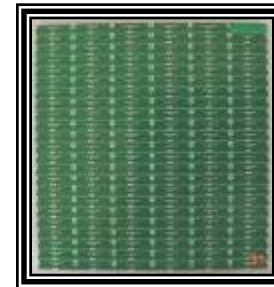
Probe Technology



Pb Free Bump
Au Bump



Al Pads



Custom
Solutions



Vertical
Probe

Probe Card Technology

- **Cantilever:** 1- 8 sites, 3 to 1000 probes
- **Vertical or Membrane:** Multisite
- **RF:** Coax, membrane & custom solutions
- **Elevated probing** up to 200C

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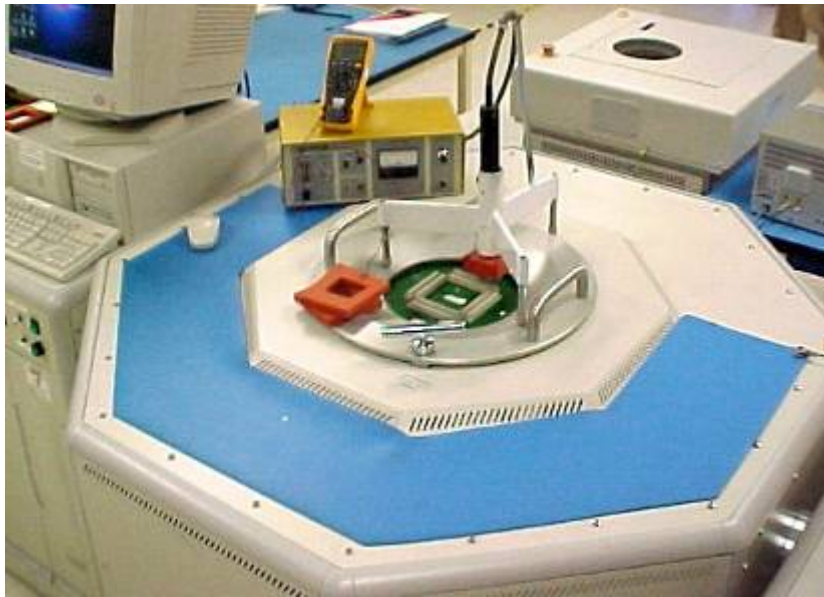
Integra Qualification and Reliability Services

- High Temperature Operating Life (HTOL)
- Low Temperature Operating Life (LTOL)
- Highly Accelerated Stress Test (HAST)
- Autoclave
- 85% Relative Humidity/85C (85/85)
- Temperature Cycle
- Stabilization Bake
- Moisture Sensitivity (MSL) Evaluation
- Preconditioning
- ESD (HBM, MM, CDM)
- Latch-up
- Endurance Testing
- Data Retention Testing
- Fine/Gross Leak
- Thermal Shock
- SAM

Integra Test Services – ESD & Latch-Up

Automated Latch-up Testing:

- Static, Dynamic and Transient Latch-up
- Testing available: CMOS / EIA / JEDEC No. 17 & 78; custom; elevated temperature to 150°C
- Testing up to 1024 pins



5/13/09

ESD Classification Testing:

- Establish ESD sensitivities and failure threshold
- ESD Testing per JEDEC, ESDA, Mil-Std-883, AEC and Lucent standards
- Pass / Fail / Analysis: Graphically monitor leakage changes
- Testing available: Human Body Model (HBM), Machine Model (MM), and Charged Device Model (CDM)
- Testing up to 1024 pins
- Package or Die level test



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Integra Test Services – ESD & Latch-Up

Experience

- Most experienced ESD/Latch-up testing facility in the world with over 18 years of continuous service
- Most experienced test engineering staff > 15 years experience
- Customer base of over 200 companies from fables to IDM, US based and international

Quality:

- ISO-9001 Registered for over 11 yrs
- DSCC Registered
- ISO-17025 Certification in process
- 98% customer satisfaction
- 97% on-time delivery

Equipment:

- ThermoElectron (Keytek) Paragons; 512 pin and 1024 pin systems
- ThermoElectron (Keytek) RCDM system
- Keytek Verifiers; 256 pin and 512 pin systems
- UTI Scanning Curve Tracer; 640 pin



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Integra Tester Platforms

Verigy

93k P1000 – 800 pin/56M/600 MHz
83k - 384 pin/8M/F120MHz

Credence

Quartet - 384 pin/16M/200MHz
ASL1000 - 50 pin/16bit/14MHz
STS6120 - 120 pin/20MHz
ASL 3000 RF & Mixed Signal

Teradyne

J750 - 512 pin/16M/50MHz
J937 - 36data/24add/8clk/50MHz

RFT

RF Test System - 6GHz (20GHz exp)

NexTest

Maverick PT - 64 pin/2M/33MHz
Maverick II PT w/ Lightning – 64 pin

LTX/Trillium

STE - 496 pin/8M/200MHz
Micromaster - 256 pin/8M/50MHz
TS80/88/DX90 - 40 pin/16bit/12MHz

Sentry

S20 - 120 pin/20MHz

MCT

2020 - 60 pin/150ps



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Integra Handlers & Probers

Auto Handlers (hot & cold temps)

- MULTITEST MT9510 (Quad Site)
- SEIKO NS6040 (Quad Site)
- SYNAX 1211 (Dual Site)
- TESAM 8653D
- MULTITEST 8704
- RASCO SO1000
- MCT 3608
- AETRIUM 5050S/5050T/5050
- ASECO S130
- EG PROBERS (3" to 12")
- RVSI LS3700 Scanners



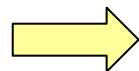
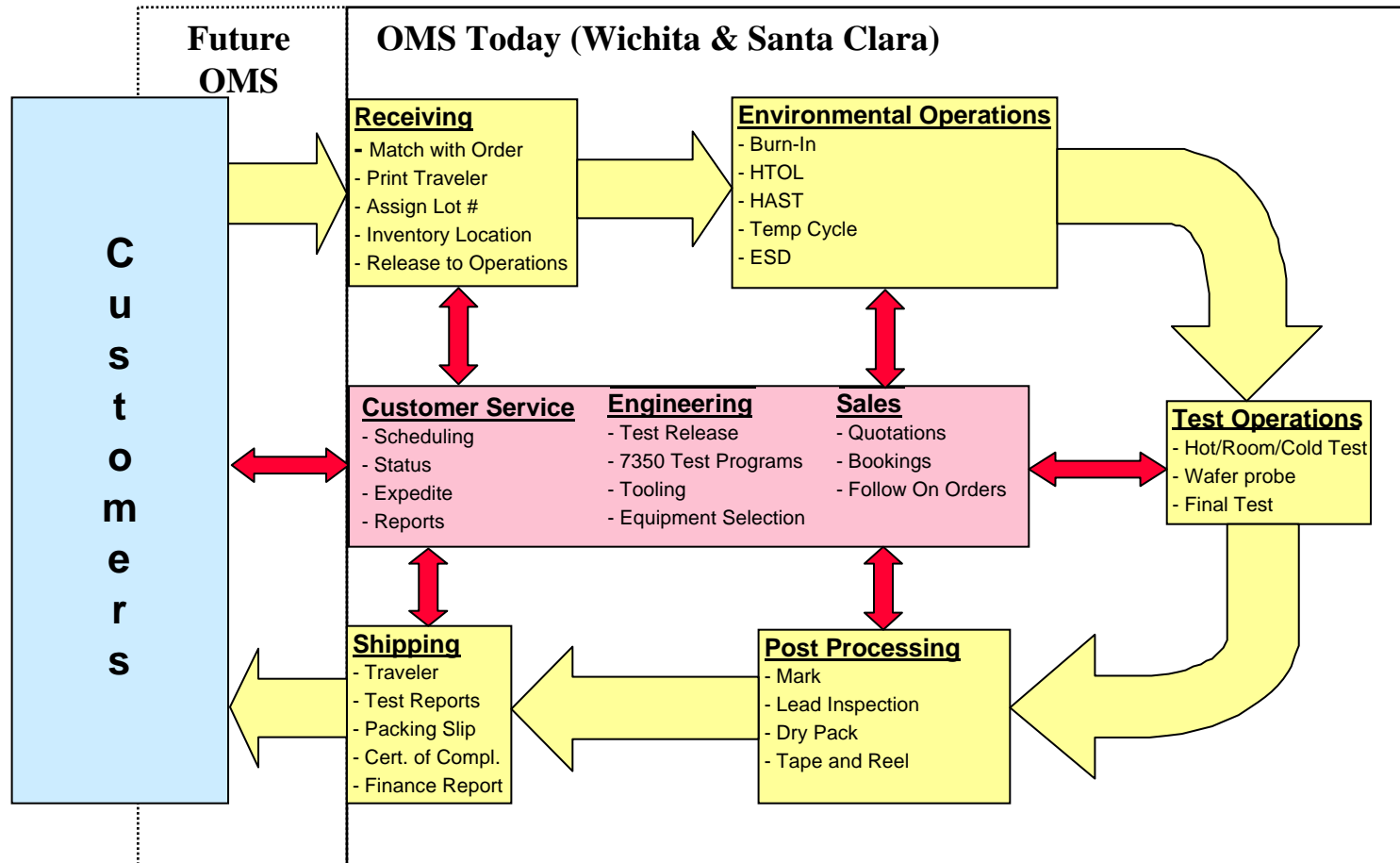
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Qualification Chambers

| Chamber | Count | Type | Conditions | Speed | Drivers | Pattern |
|-----------------------|------------|---------------------|------------------------------------|-------|----------------------------|-----------------|
| AEHR Test | (14) | Dynamic Burn-in | 125C Standard 70C-150C | 1Mhz | 8 Clk 16/32 In 52 In | 2K 32K 1M |
| Loranger | (1) | Discrete Burn-in | 70C-150C | DC | Bias | - |
| ESPEC Express Test | (1) (2) | HAST | 70C-131C 85-100% R.H 1-5 ATM | DC | Bias | - |
| Despach | (2) | 85/85 | 85% R.H. 85C | DC | Bias | - |
| Blue M | (2) | Stay Bake | 70C to 150C | - | - | - |
| ESPEC Thermotron | (1) (1) | Temp Cycle | -65C to 150C | - | - | - |
| SAS 3000 | (1) | Steam Age | Mil Std | - | - | - |



Order Management & Lot Tracking System



Material Flow

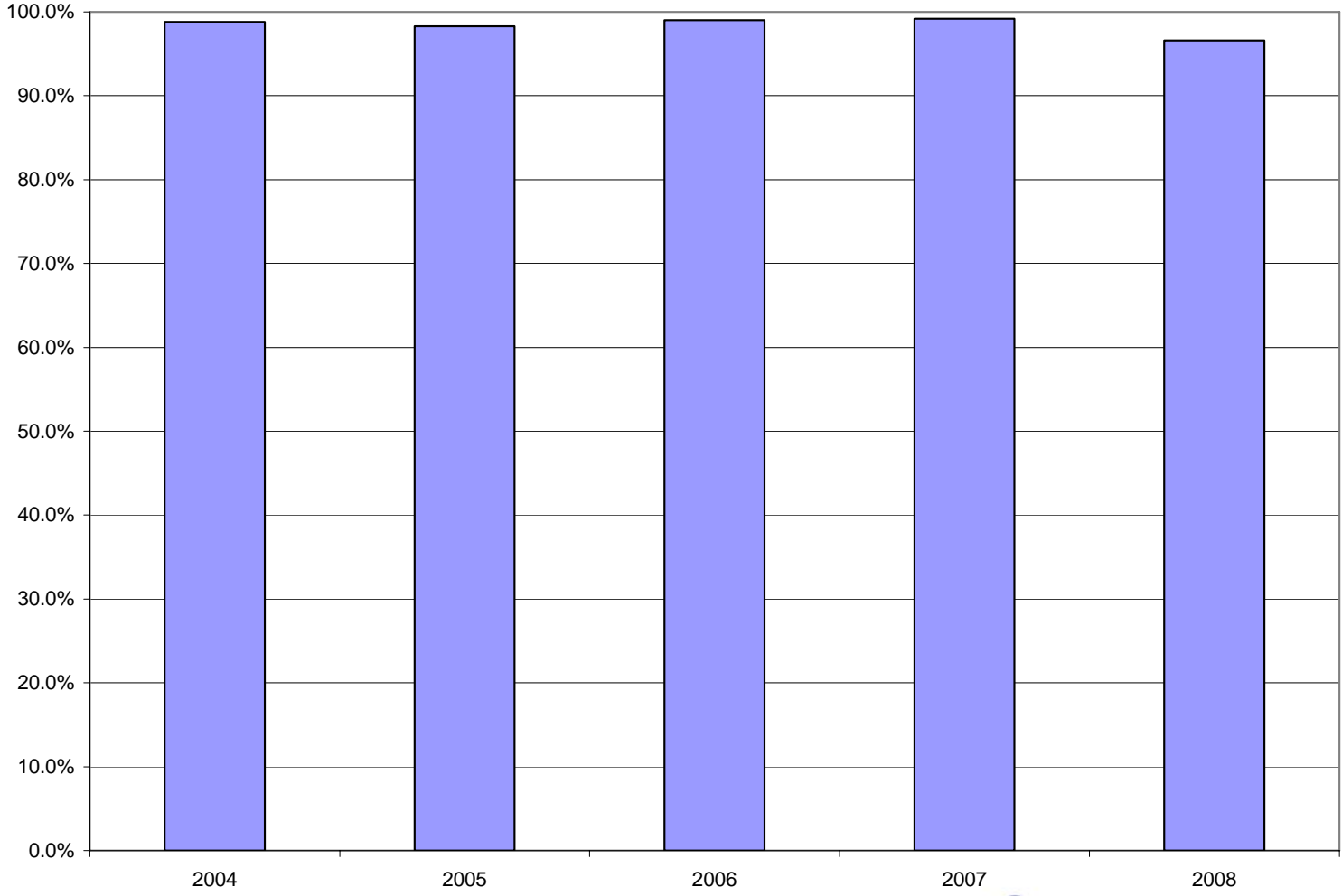


Information Flow

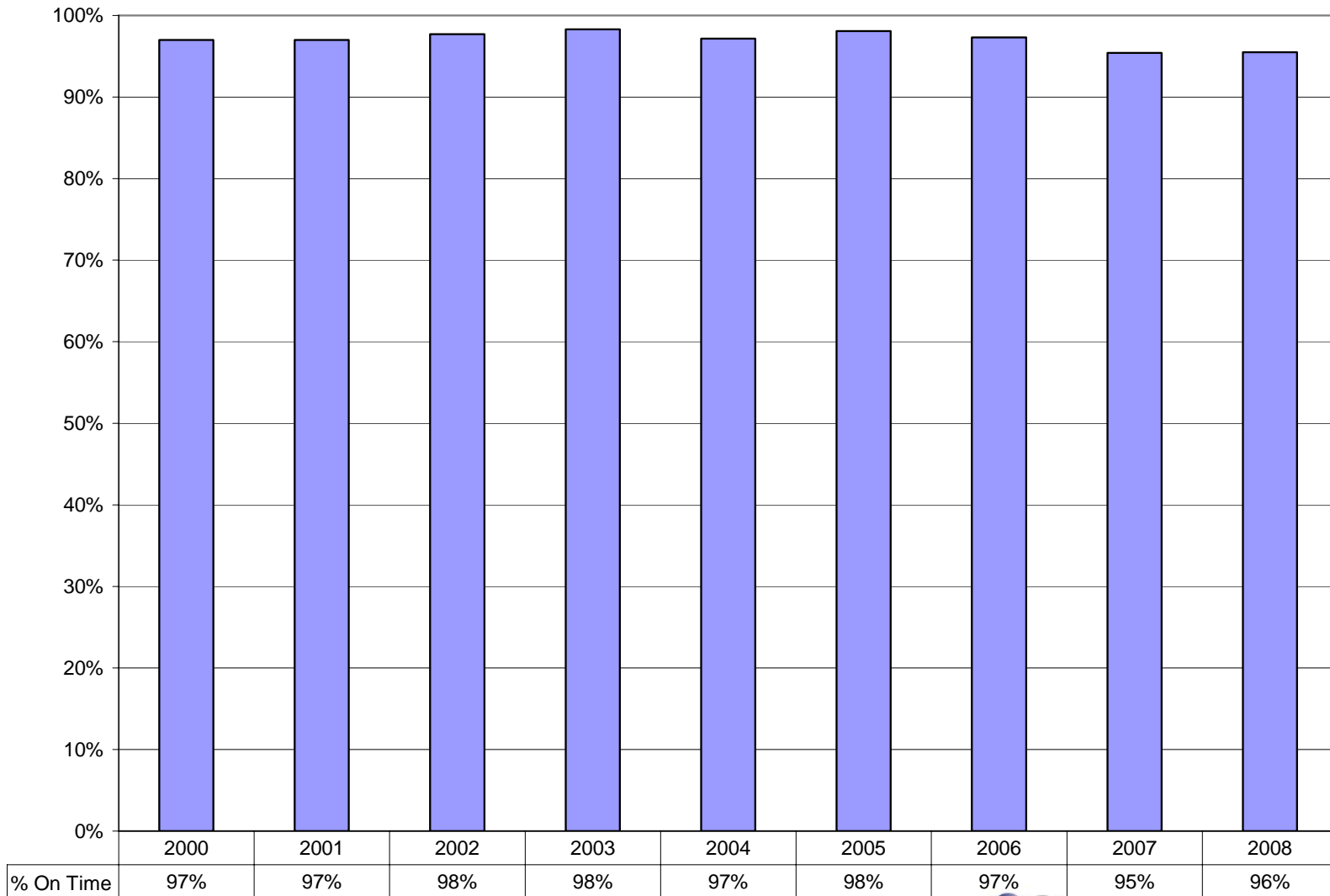


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Integra Overall Customer Satisfaction



Integra Overall Delivery Performance



INTEGRA
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Integra Competitive Advantage

- **People**
 - Largest Engineering Staff of any US based Test Lab
 - Entire Company is Customer Focused
 - **99% Customer Satisfaction, 96% On Time Delivery**
 - Mature Management Team (>20 years average industry experience)
- **Services**
 - Support All Device Technologies (RF, Mixed Signal, Linear, Memory & Digital)
 - ISO 9001, AS9100, ITAR & DSCC Registered
- **Experience**
 - 26 Year History as a Test Lab
 - Project Management & Engineering Expertise
- **Equipment & Facilities**
 - Broad Equipment Base (Testers, Chambers and Handlers)
 - Cold & Hot Temp Automated Handlers
- **Systems**
 - Customized Fully Integrated Oracle Lot Tracking Database
 - Automated scheduling

