



RDS 2.0 | WIN 2.0 Software

Innovative Enhancement to a Trusted
System

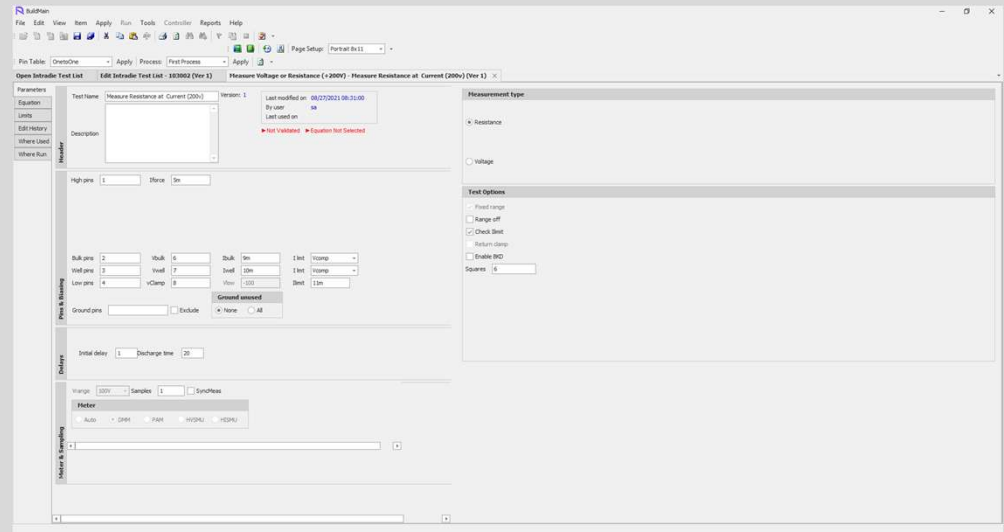
NEEDHOLM

Changed Parametric Test



Productivity

- System responsibility becomes a part-time job
- Speed w/ Quality
- Field-proven algorithms
- Optimized test conditions
- Microsecond communications
- Full Test Suite
- Characterize, test, report, and graph



Data Driven Test Environment



Features of WIN 2.0

- Allows multiple test plans to **be open simultaneously**
- Utilizes tabs within the software for **side-by-side viewing**
- Setting up devices in clearly defined, tiered lists
- File-based operating system is replaced with **SQL database**
- Everything **is stored in the database**
- Manage multiple tests in a test list in a single, named list, that **is easily accessible**
- Variable **privileges** (operators, engineers, techs, admin)

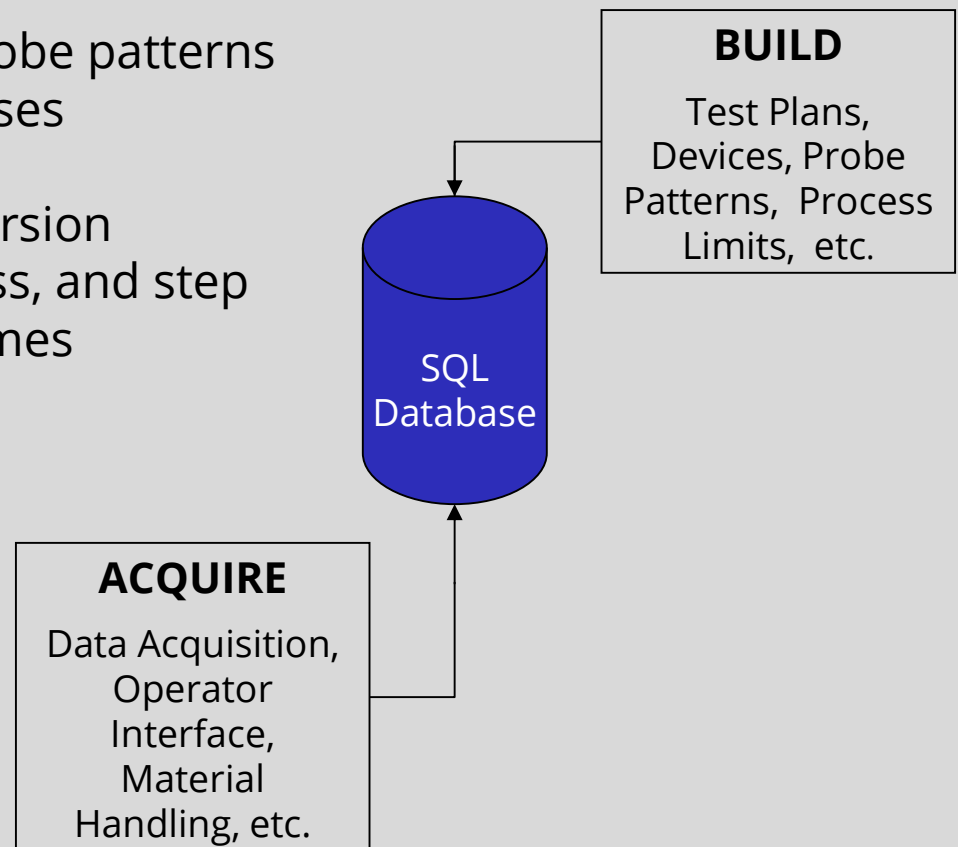


Database Management

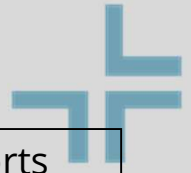


All crucial information is securely stored in the database, allowing for easy access and efficient management.

- Test conditions, results, and probe patterns
- Library of products and processes
- Multiple version control
- Release of single production version
- Data grouped by device, process, and step
- Test same wafer lot multiple times
- Process and device controlled



Complete and Automated

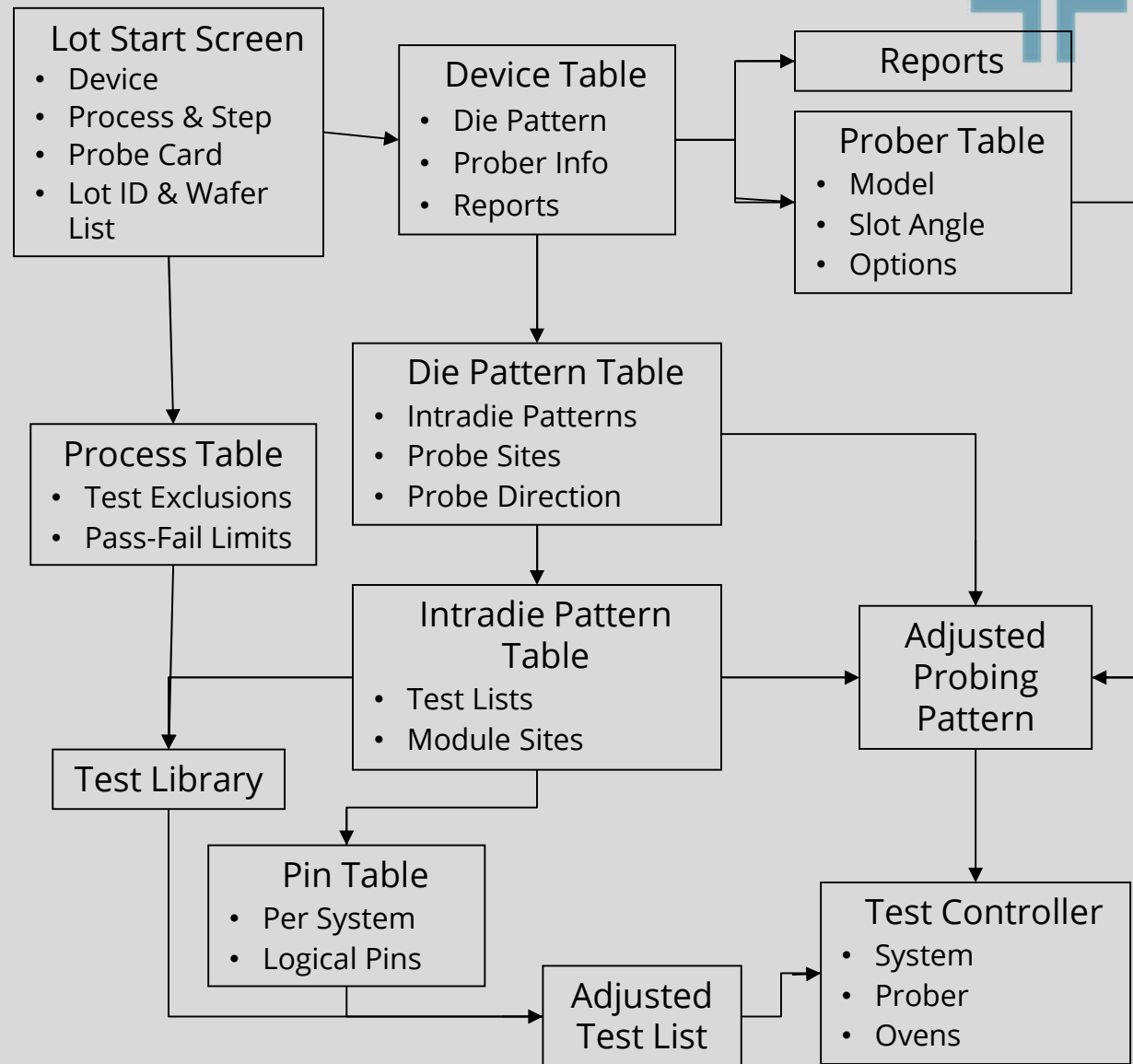


One Step Operation

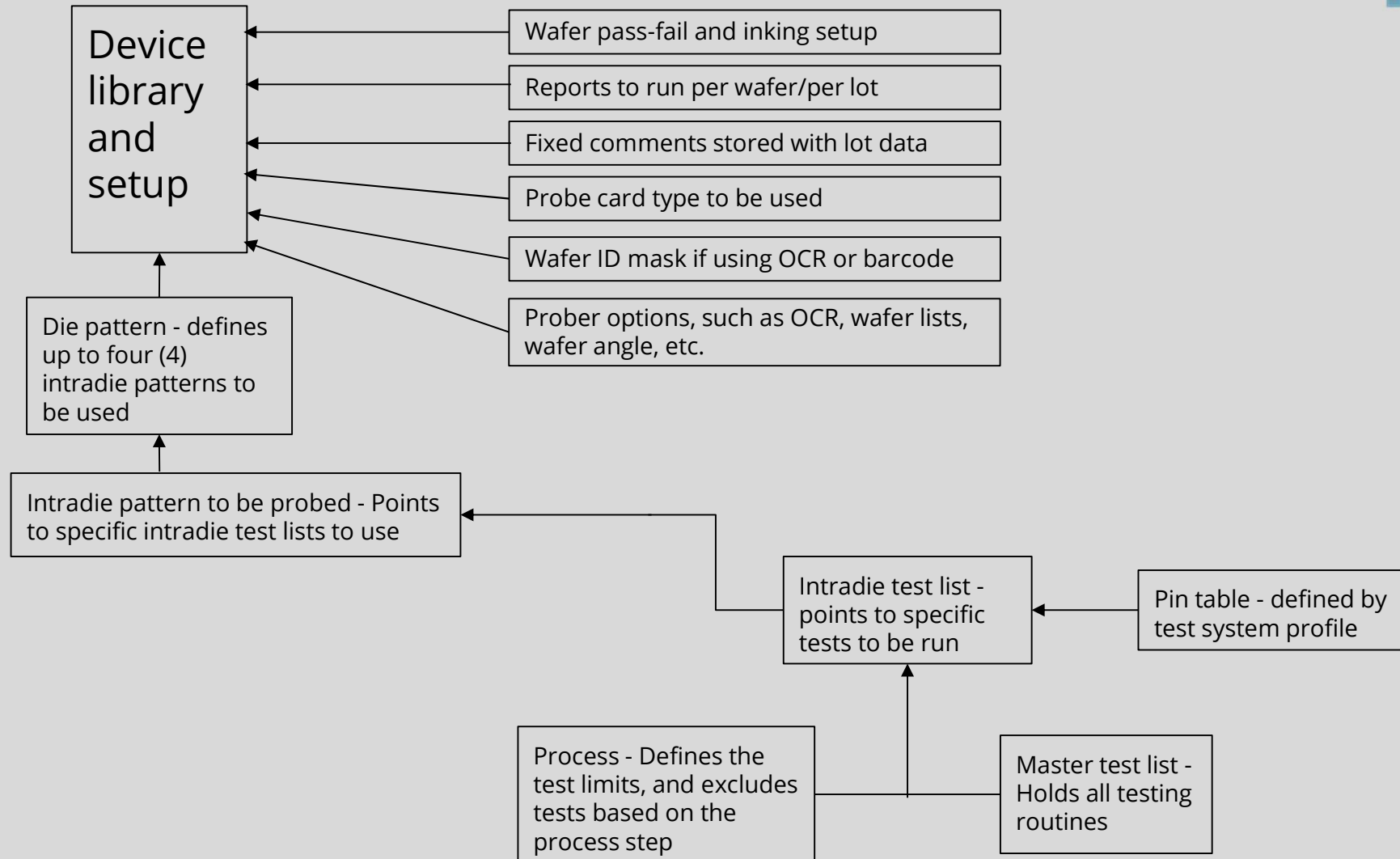
- A few answers by operator on lot start screen results in dozens of records being queried, combined, and altered from database and sent to test controller
- Complex test plans and probing patterns are seamlessly changed for test system and probe station configurations

Reduce Mistakes

- Unique language interface available per user/operator
- Same test plans and probe patterns can be executed on a multitude of configurations, devices, processes, and process steps



Test Plan Hierarchy



Test Plan Creation



WIN 2.0 contains an expansive list of test templates that cover **bipolar, depletion FET, and enhancement FET** devices implemented on **GaAs, GaN, Si,** and **SiC** materials. The test engine has capabilities such as:

- Prober driver and probe site editor
- Lot reports and test data exporting
- Version control of test library and devices
- Test routine code documentation
- Test conditions (Pins, voltages, etc.)
- System manuals and training guides

The screenshot displays three panels from the WIN 2.0 test plan creation software. Each panel has a 'Parameters' section on the left with tabs for Equation, Limits, Edit History, Where Used, and Where Run. The main area contains a 'Description' field and a 'Header' section with various input fields for test parameters. The 'Measure Current or Resistance - 4007 Gate Leakage B (Ver 1)' panel shows parameters like High pins, Bias pins, Bulk pins, Well pins, Low pins, and Ground pins. The 'Edit Intrinsic Test List - 4007 FET Lab (Ver 1)' panel shows parameters like High pins, Bulk pins, Well pins, Low pins, and Ground pins. The 'Measure Current or Resistance - Sweep Voltage - 4007 NFET Gate Current B Sweep (Ver 1)' panel shows parameters like High pins, Bulk pins, Well pins, Low pins, and Ground pins. Each panel also has a 'Delays' section with fields for Initial delay, Discharge time, and a 'Range' section with fields for Range, Samples, and a checkbox for SyncMeas. The 'Meter & Sampling' section at the bottom of each panel includes a 'Meter' dropdown menu and a 'Sampling' section with a checkbox for Auto and a 'Cell at' field.

Simply Build Tests

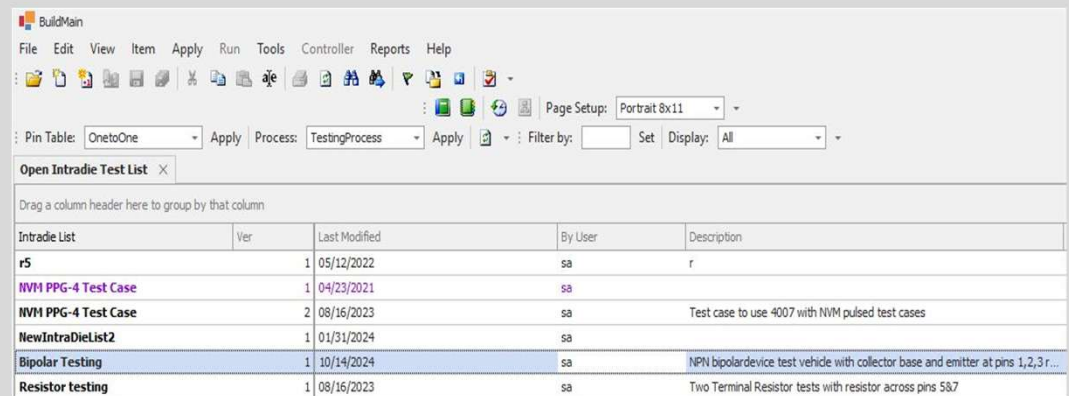


In the Build application, you have access to all the essential tools required to create the optimal environment for your test system.

Device Setup

You can set up all of your parameters for testing in Build. This includes:

- Die and intradie patterns
- Intradie tests and test lists
- Device parameters (pass/fail setup, report options, processes and process steps)
- Probing setup and probe card setup
- Tester profile configuration

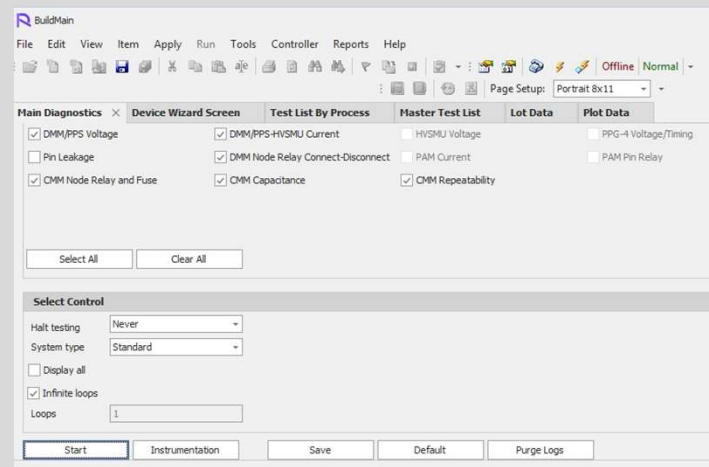


Intradie List	Ver	Last Modified	By User	Description
r5	1	05/12/2022	sa	r
NVM PPG-4 Test Case	1	04/23/2021	sa	
NVM PPG-4 Test Case	2	08/16/2023	sa	Test case to use 4007 with NVM pulsed test cases
NewIntraDieList2	1	01/31/2024	sa	
Bipolar Testing	1	10/14/2024	sa	NPN bipolar device test vehicle with collector base and emitter at pins 1,2,3 r...
Resistor testing	1	08/16/2023	sa	Two Terminal Resistor tests with resistor across pins 5&7

Diagnostic Tools

There are several diagnostic tools to keep the system healthy, efficient, and accurate:

- Main Diagnostics for ensuring system health
- Self Calibration to ensure module accuracy
- Prober Checkout to make sure connection to prober is established and functioning properly



Main Diagnostics

☒ DMM/PPS Voltage ☒ DMM/PPS-HVSMU Current ☐ HVSMU Voltage ☐ PPG-4 Voltage/Timing

☐ Pin Leakage ☒ DMM Node Relay Connect-Disconnect ☐ PAM Current ☐ PAM Pin Relay

☒ DMM Node Relay and Fuse ☒ CMM Capacitance ☒ CMM Repeatability

Select All Clear All

Select Control

Halt testing: Never

System type: Standard

☐ Display all

☒ Infinite loops

Loops: 1

Start Instrumentation Save Default Purge Logs

Acquire



Acquire is the program used for testing devices created in Build, as lots. It is primarily an operator tool used to be able to easily access and examine data

The screenshot shows the 'Acquire' software window with the 'Advanced Lot' screen selected. The interface includes a sidebar with 'Start Standard Wafer Lot', 'Setup Information', and 'Advanced Options'. The main area contains various input fields and buttons for configuring a test lot. At the bottom, there are 'Validate' and 'Start' buttons.

Field	Value	Action
Lot		Select
Device		Select
Version		
Process		Select
Process Step		Select
Wafer List		Select
# Wafers		
Prior lot		Select
Prior wafer		Select
Lot ID A		
Lot ID B		
Duplicate wafer:	☒ Overwrite ☐ Skip wafer ☐ Prompt operator	
Start at position:	☒ First die ☐ Resume (last intradie) ☐ Resume (1st intradie)	
☐ Resume on abort		

Buttons: Clear, All wafers, Validate, Start

What is needed - Deliverables



We provide

- RDS WIN 2.0 Software
 - Engineering services (data migration, training)
 - Customization Support (specific privileges, additional features, etc.)
 - Active developer support (solving bugs, implementing changes, patches)
 - DR YIELD graphical display software
 - Workshops (done with Reedholm and customer) to determine what, if any, NRE is needed
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You Provide

- PC with Windows 10/11
- Microsoft SQL 2019
- MSS Reporting Service

Summary



WIN 2.0 was developed to be a fresh face for the RDS software, as well as improving the quality of life for customers. The important features and changes are:

No lag time

- WIN 2.0 delivers a fast and highly responsive user experience
- Applications run smoothly with minimal latency or slowdowns

Long-term support

- Created for longevity
- Active development team
- Changes and customizations are available, along with workshops, active support, and SW patches

Test Plan Creation

- Comprehensive list of several verified premade test plans
- Accessible options, QOL improvements
- Cursor highlight tooltips
- Creating tests can take as little as 30 seconds
- Ability to run tests in the test editor, as well as curve tracing, results, and descriptive validation checking

IT Security

- WIN 2.0 is up to date with Windows 10/11, as well as any security patches or updates that come along