



TTR (Test Time Reduction)

The Optimal+ Test Time Reduction (TTR) solution combines traditional test time reduction techniques with innovative intelligent adaptive testing in an entirely automated process. Architected for use by internal operations (IDMs) or across globally dispersed operations (fables), the flexible TTR solution enables product teams to designate the menu of tests it wants to run throughout every foundry or subcon across its supply chain for increased efficiency and quality augmentation.

- *A complementary solution to the Optimal+ Semiconductor Operations Platform*
- *Requires Global Ops*

Highlights

- Reduces test time by as much as 30% without compromising quality, yield or reliability
- Tracks the state of your global TTR activities from a single central location
- Automatically publishes rules across your supply chain
- Ensures the validity of your TTR recipes by analyzing and simulating TTR rules using historical test data
- Manufactures intelligence from numerous test processes, including: E-Test, Wafer Sort and Final Test

Reducing Test Time, Augmenting Quality

Every test facility has a budget for how much time it can dedicate to any given testing menu, making the introduction of TTR programs an inevitable reality – and raising questions as to the ultimate quality of the tested parts.

At Optimal+, we negate the damaging constraints of limited test time to actually increase quality, not reduce it.

Rather than just removing a so-called “no-fail” test permanently from a test program, TTR turns it on/off at user-designated intervals so that if there is a manufacturing variation where the test in question does return a fail, we can quickly re-introduce it, effectively boosting quality.

Moreover, lengthy tests that are typically removed because they are costly to perform – such as measuring the max speed range of a CPU – can be automatically reintroduced at pre-determined intervals in order to verify that quality and performance assumptions from engineering and operations are correct.

TTR (Test Time Reduction) Solution

How It Works

1



ANALYZE DATA

Powerful analysis tools help engineering teams to scrutinize their test results to identify opportunities to augment tests with no impact on quality and to achieve greater throughput

2



CREATE RULES

Establish automated operational monitors that identify “no-fail” tests or other scenarios that impact test time

3



SIMULATE SCENARIOS

Run powerful offline simulations to monitor test results and dynamically switch tests on and off based on sampled test results

4



PUBLISH TO SUPPLY CHAIN

Once a test program change is green-lighted for achieving its intended goal, it can be propagated to the entire tester fleet

5



CONTINUAL MONITORING

TTR continually monitors any changes made to a test program, including “switching on” tests that have been “switched off” to randomly sample test results to ensure that results remain within control limits

6



VALIDATE RULES

Once a rule is verified as running smoothly and the supply chain adapts to the new requirements, it can be further “optimized” to continuously achieve even more improvement over time