**NplusT**
Loc. Castelfranco 132
05026 Montecastrilli
Italy
info@n-plus-t.com
www.n-plus-t.com

FOR IMMEDIATE RELEASE

# NplusT releases NanoCycler HS20, the fastest NAND characterization tester

*NplusT has released NanoCycler HS20 for BGA132, BGA152, and BGA154 configurations, the fastest and most feature-rich NAND characterization tester today, supporting 2.0 GT/sec NAND interface speed. The company forecasts to come out with a further upgrade later this year, to reach 2.4GT/sec.*

NplusT is pleased to announce the general availability of NanoCycler HS 20, the next-generation NAND characterization system.
NanoCycler HS20 is the only commercial system today performing NAND characterization and test at 2.0GT/sec. HS20 supports BGA132, BGA152 and BGA154 packages.

Operating the NAND during characterization in the same manner as it will work in the target SSD, is essential to obtain high-quality test results, and consequently to optimize the SSD design and media management algorithms, for performance and reliability. The NAND interface speed is one of the key factors impacting array timing and thermal conditions, power, signal and data integrity.

To meet these critical objectives, NplusT is committed to always delivering the best-in-class test systems, in line with the speed and feature roadmap of the top NAND manufacturers. NanoCycler HS24 running at 2.4GT/sec is under development and is expected within the end of the year.

NanoCycler, in addition to the high speed NAND interface, supports all the features which make it a one-stop solution for NAND characterization:

- Full independency of the test sockets, ability to run independent tests, or the same test with different parameters on each socket, optimizing the statistical data generation at multiple test conditions;
- Per NAND package, accurate and fast rate temperature control;
- Write and verify data pattern generation with zero overhead, including "perfect" random data pattern;
- Fast bitmap data transfer from/to the device under test;
- Measurement of flash operating timing at high resolution;
- High-resolution NAND power profiling for optimal SSD power integrity:
  - Detection of current peaks and average power of the operations, by applying an intelligent filtering algorithm;
  - Waveform capture of the currents, to increase the visibility on the dynamic power consumption during the different stages of the NAND operations;
- Built-in, customizable interface training algorithms with few picoseconds timing resolution;
- Programmable edge placement of the control signals with nanosecond resolution.

The ready-to-use development environment increases productivity thanks to:

- Continuous NAND library update with the most recent devices released by NAND vendors;
- Full support of ONFi command set with predefined or custom data patterns;
- Configurable operation targets: single and multiple LUNs, CEs, channels;

- Full support of proprietary commands sequences and vendor-specific commands with customizable signal and command sequences and timings;
- Implementation of customized test flows and algorithms using the popular Python language;
- Debug tools like a visual signal sequence display to help to troubleshoot;
- Easy-to-postprocess and customizable data log.

NanoCycler's control software and user's interface provide a productive test system thanks to:
- Easy-to-use graphical user interface for test execution and high-level test flow definition;
- Efficient data collection system shared by multiple test systems;
- Post-processing of the generated data with NplusT's BarnieMAT data analysis suite or with customer specific or third-party software.

NanoCycler is fully scalable to optimize investment and cost-of-ownership, from 6-socket desktop tester to cascaded 84-socket racks, with the possibility to use different types of tester units in the same system.

NanoCycler – as demonstrated by dozens of users worldwide – is the best equipment for understanding the most recent NAND devices, thus building reliable SSDs from imperfect NANDs.
The knowledge generated about endurance, retention, disturb sensitivity, dynamic power consumption and other features are crucial to designing efficient hardware and extending NAND lifetime via optimal media management algorithms.

For more information, please contact info@n-plus-t.com and visit www.n-plus-t.com.

###