CLAIMS

1. A method for non-volatile storage comprising:

receiving a signal indicating that a removable storage device has been coupled with a module interface of a storage instrument, the removable storage device comprising a flow cell, wherein the module interface is adapted to fix the removable storage device in a static position;

in response to receiving the signal indicating that the removable storage device has been coupled with the module interface, enabling the flow cell for synthesis and sequencing of polynucleotides;

operating a sequencing device comprising one or more illuminators and one or more optical sensors to perform sequencing-by-synthesis on a polynucleotide within a well of a plurality of wells of the flow cell to determine a set of sequencing data that describes nucleotides of the polynucleotide;

operating a fluidics device to provide fluid to the flow cell for sequencing-by-synthesis with the sequencing device;

determining, using a processor, a set of binary data based upon the set of sequencing data and an encoding scheme, wherein the encoding scheme describes a set of rules to convert information between a binary format and a non-binary format associated with the set of sequencing data;

after operating the sequencing device to perform sequencing-by-synthesis on the polynucleotide within the well of the plurality of wells of the flow cell, receiving a signal indicating that the removable storage device is to be dismounted from the module interface;

in response to receiving the signal indicating that the removable storage device is to be dismounted from the module interface, dispensing a preservative fluid to the flow cell wherein the

preservative fluid is adapted provide a preservative coating on the flow cell to preserve and protect polynucleotides in the plurality of wells, and wherein the preservative fluid is selected from a group consisting of a desiccant, an antioxidant, a polymer coating, and combinations of the foregoing; and

after receiving the signal indicating that the removable storage device is to be dismounted from the module interface, removing the removable storage device from the module interface.

2. The method of claim 1, further comprising:

receiving a set of input data in the binary format;

determining a set of input sequencing data in the non-binary format based upon the set of input data and the encoding scheme; and

introducing a nucleotide carrier fluid to the flow cell to create an input polynucleotide in a target well of the plurality of wells based on the set of input sequencing data.

3. The method of claim 1 wherein enabling the flow cell for synthesis and sequencing of polynucleotides comprises operating the fluidics device to provide a preparation fluid to the flow cell, wherein the preparation fluid is adapted to remove a preservative coating on the flow cell.

4. The method of claim 1, wherein enabling the flow cell for synthesis and sequencing of polynucleotides comprises operating a temperature control device, wherein the temperature control device raises a temperature of the flow cell relative to the temperature of the flow cell when the signal indicating that the removable storage device had been coupled with the module interface was received.

5. The method of claim 4, wherein raising the temperature of the flow cell relative to the temperature of the flow cell when the signal indicating that the removable storage device had been coupled with the module interface was received comprises raising the temperature of the flow cell to a predetermined temperature.

6. The method of claim 5, wherein the predetermined temperature is a temperature for sequencing and synthesizing polynucleotides.

7. The method of claim 6, wherein the predetermined temperature is between 59° C and 95° C.

8. A method for non-volatile storage comprising:

receiving a signal indicating that a removable storage device has been coupled with a module interface of a storage instrument, the removable storage device comprising a flow cell, wherein the module interface is adapted to fix the removable storage device in a static position;

in response to receiving the signal indicating that the removable storage device has been coupled with the module interface, enabling the flow cell for synthesis and sequencing of polynucleotides;

operating a sequencing device comprising one or more illuminators and one or more optical sensors to perform sequencing-by-synthesis on a polynucleotide within a well of a plurality of wells of the flow cell to determine a set of sequencing data that describes nucleotides of the polynucleotide;

operating a fluidics device to provide fluid to the flow cell for sequencing-by-synthesis with the sequencing device;

determining, using a processor, a set of binary data based upon the set of sequencing data and an encoding scheme, wherein the encoding scheme describes a set of rules to convert information between a binary format to and a non-binary format associated with the set of sequencing data;

after operating the sequencing device to perform sequencing-by-synthesis on the polynucleotide within the well of the plurality of wells of the flow cell, receiving a signal indicating that the removable storage device is to be dismounted from the module interface;

in response to receiving the signal indicating that the removable storage device is to be dismounted from the module interface freeze drying the flow cell to preserve polynucleotides in the plurality of wells; and

after receiving the signal indicating that the removable storage device is to be dismounted from the module interface, removing the removable storage device from the module interface.

9. The method of claim 8, wherein:

the method comprises removing the removable storage device from the module interface;

receiving the signal indicating that the removable storage device is to be dismounted from the module interface takes place after operating the sequencing device to perform sequencing-by-synthesis on the polynucleotide within the well of the plurality of wells of the flow cell; and

removing the removable storage device from the mobile interface takes place after receiving the signal indicating that the removable storage device is to be dismounted from the module interface.