CLAIMS

1. A computer implemented system for performing electromotive force analysis of a storage device comprising:

an inductance coil positioned in proximity to a drive controller of the storage device for capturing data from electromotive force energy generated by the storage device;

a coprocessor chipset communicatively coupled to the drive controller, wherein the coprocessor chipset captures from the drive controller, data corresponding to operation of the storage device while capturing the data corresponding to electromotive force energy generated by the storage device;

at least one signal wire for communicating the captured data from the inductor coil to the coprocessor chipset;

wherein the coprocessor chipset is configured to digitally filter away unwanted signals from the captured data from the inductance coil, and to log time periods associated with the digitally filtered data; and

wherein the coprocessor chipset performs analysis based on the digitally filtered data, the logged time periods associated with the digitally filtered data and the data corresponding to operation of the storage device to detect any anomalies throughout the entire operation of the storage device, whereby a period of the analysis is determined based on the data corresponding to the operation of the storage device.

2. The computer implemented system of claim 1, wherein the coprocessor chipset correlates the data corresponding to operation of the storage device with the captured data from the inductance coil, and wherein an anomaly is detected if the correlation exceeds a pre-determined threshold.

3. The computer implemented system of claim 2, wherein upon detection of the anomaly, the coprocessor chipset further derives a spectral image based on the data

corresponding to operation of the storage device and the captured data from the inductance coil to identify the anomaly.

4. The computer implemented system of claim 3, wherein the coprocessor chipset identifies the anomaly by comparing the spectral image against a database of spectral image signatures.

5. The computer implemented system of claim 3, wherein the coprocessor chipset is an Artificial Intelligence (AI) coprocessor chipset configured to learn the operation of the storage device, and wherein the AI coprocessor chipset identifies the anomaly by comparing the spectral image against a database of spectral image signatures that is trained by the AI coprocessor chipset.

6. The computer implemented system of any one of the preceding claims, wherein the coprocessor chipset performs analysis in real time to detect any anomaly in the operation of the storage device.

7. The computer implemented system of any one of claims 1 to 6, wherein the coprocessor chipset communicates with the drive controller utilizing NVMe protocol.

8. The computer implemented system of any one of claims 1 to 6, wherein the coprocessor chipset communicates with the drive controller utilizing AHCI protocol.

9. The computer implemented system of any one of the preceding claims, wherein the anomalies are caused by malware.

10. The computer implemented system of any one of the preceding claims, wherein the coprocessor chipset interrupts the operation of the storage device when an anomaly is detected.

11. The computer implemented system of any one of the preceding claims integrated with the storage drive, wherein the storage drive is a solid-state drive.

12. The computer implemented system of claim 1, further comprising a power management integrated circuit (PMIC) for powering the coprocessor chipset separately from the

drive controller.

13. The computer implemented system 11 or 12, furthering comprising a boundary guard trace, wherein the coprocessor chipset is positioned within the boundary guard trace to protect against unintentional signals, and wherein the inductance coil and the drive controller are positioned outside the boundary guard trace.

14. A computer implemented method for performing electromotive force analysis of a storage device comprising the steps of:

capturing data corresponding to electromotive force energy generated by the storage device by an inductance coil positioned in proximity to a drive controller of the storage device that controls the operation of the storage device;

communicating the captured data to a coprocessor chipset,

digitally filtering away, using the coprocessor shipset, unwanted signals from the captured data from the inductance coil, and logging time periods associated with the digitally filtered data;

capturing data corresponding to operation of the storage device from the drive controller while capturing the data corresponding to electromotive force energy generated by the storage device;

communicating the data corresponding to operation of the storage device to the coprocessor chipset;

analyzing the digitally filtered data, the logged time periods associated with the digitally filtered data and the data corresponding to operation of the storage device, using the coprocessor chipset to detect any anomalies throughout the entire operation of the storage device, whereby a period of the analysis is determined based on the data corresponding to the operation of the storage device.

15. The method of claim 14, further comprising:

correlating the captured data from the inductance coil with the data corresponding to operation of the storage device to detect an anomaly in the operation of the storage device.

16. The method of claim 15, further comprising:

deriving a spectral image based on the captured data from the inductance coil and the data corresponding to operation of the storage device, upon detection of an anomaly, and

comparing the spectral image against a database of spectral image signatures to identify the anomaly.

17. The method of claim 14, furthering comprising learning the operation of the storage device by Artificial Intelligence (AI) to obtain the database of spectral image signatures.

18. The method of any one of claims 14 to 17, wherein the storage device is a solid-state drive.

19. The method of claim 18, further comprising the step of:

interrupting the operation of the solid-state drive when an anomaly is detected by the coprocessor chipset.