



which boosts the speed up to 5 times. The acceleration mode can be chosen in the settings of the **Proceed** tool.

Turbo mode is the fastest although it implies a certain restriction on the extraction of principal components. In particular, the score outliers cannot be in-situ removed.

However, the *Gatan Microscopy Suite version higher than 3.4.0 is to be installed* in order to enjoy this speed boost. The "Python Support" should be enabled during the installation.

Except of principal components extraction, numerous other processing steps are boosted. From the table, you get an idea about acceleration of various operations.

The basic version is designed to work in all versions of Gatan Microscopy Suite (GMS). Such through-version compatibility however means that the calculation speed is limited. The boost option provides acceleration of some commonly used operations. This is based on the specific features of a given GMS, thus there are the separate editions for GMS1, GMS2 and GMS3. Depending on your system you may request the edition for GMS1, GMS2, GMS3 or all of them – the price is independent of how many editions you need.

**Table 1** – Acceleration of some operations in comparison with the basic version. SI stands for spectrum-images

OPERATION	WHERE IT IS USED	GAIN
NIPALS iterations	extraction of principal components	3-5 times
binning SI	pre-treatment of EDX SI	5 times
Gaussian filtering SI	pre-treatment of EDX SI	5 times
expanding spectra	PCA pre-treatment, rotation	3 times
rendering SI	PCA pre-treatment, clustering	50 %

Most importantly, extraction of principal components is accelerated through the appended Python miniconda package. The speed is increased in approximately 3 times. Additionally one can choose the turbo mode,