Appendix of new command: DataConvert3 at the SACLA HPC

1 <u>Difference from DataConvert</u>

The main differences between DataConvert and DataConvert3 are described below. Especially, note the items marked "incompatible" with old version.

A) An HDF5 file without image files (including only data stated above) can be generated. Use the command "DataConvert3" without both options of "-each" and "-reconst".

B) In the group "event_info", the tree structure and signal names are changed.
   i.   The group of beamlines and experimental hatches are registered under the event_info tree.
   ii. A signal "photon_energy_in_eV" acquired by the inline spectrometer in the optical hatch 2 is registered.
   iii. The beam monitors to measure pulse energy of XFEL are registered as "bm_*_pulse_energy_in_joule" for the calibrated signals.
   iv. The accelerator status "accelerator_status" is registered in the group "acc".
   v.   (incompatible) The signal name of tag number is changed from "tag_number" to "tag_number_list". The datatype is also changed from 32 bit integer to 64 bit integer.

C) In the group "run_info", accelerator and detector configurations are registered.
   i.   In the group "sacla_config", the signals stated below are included.
      •   Acceleration energy,
      •   K-value
      •   configured photon energy
      •   repetition rate
   ii. In the group "detector_config", the signals stated below are included.
      •   Registered detector list,
      •   Registered assembled detector list
   iii. (incompatible) The datatype of "start_tag_number" and "end_tag_number" is changed from 32 bit integer to 64 bit integer.

D) In the group "file_info",

    i.   (incompatible) The datatype of "run_number_list" is changed from 32 bit integer to 64 bit integer.

E)   The signals relevant to MPCCD detector are optimized for their pathes and names.
- i.   The pixel size "pixel_size_in_micro_meter" is added in the group "detector_info".
- ii.   The exposure time "exposure_time_in_sec" is added in the group "detector_info".
- iii.   (incompatible) The signal name of "manipulator_position" is changed to be "manipulator_position_in_micro_meter". The path is also moved from "/run_**/detector_**/tag_**/" to "/run_**/detector_**/detector_info".
- iv.   (incompatible) The signal name of "detector_coordinate_value(XYZT)" is changed to be "detector_coordinate_in_micro_meter".
- v.   (incompatible) The signal name of "detector_2d_octal" is changed to be "detector_2d_assembled".
- vi.   (incompatible) Unnecessary datasets are removed.