



Wire Cell ProtoDUNE Local Meeting

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Feb 11, 2026 (Wed)

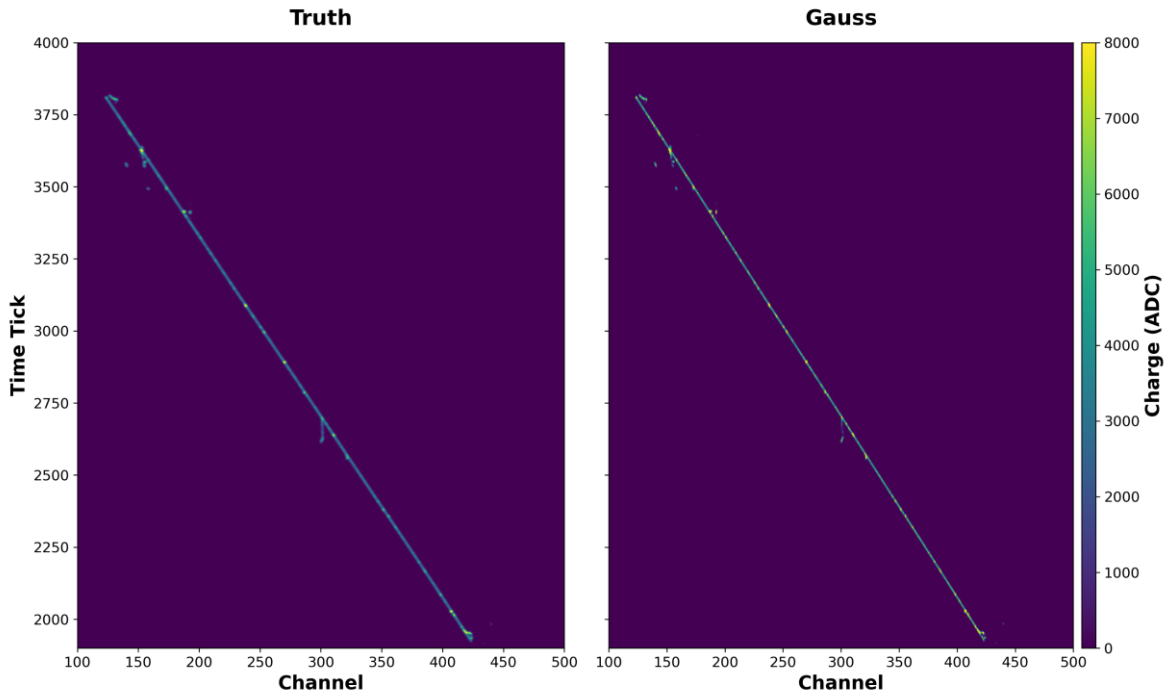
1. PDVD DNN Dataset Generation

Waveform Analysis: Truth & Gauss Charge comparison

2D Images of Truth & Gauss

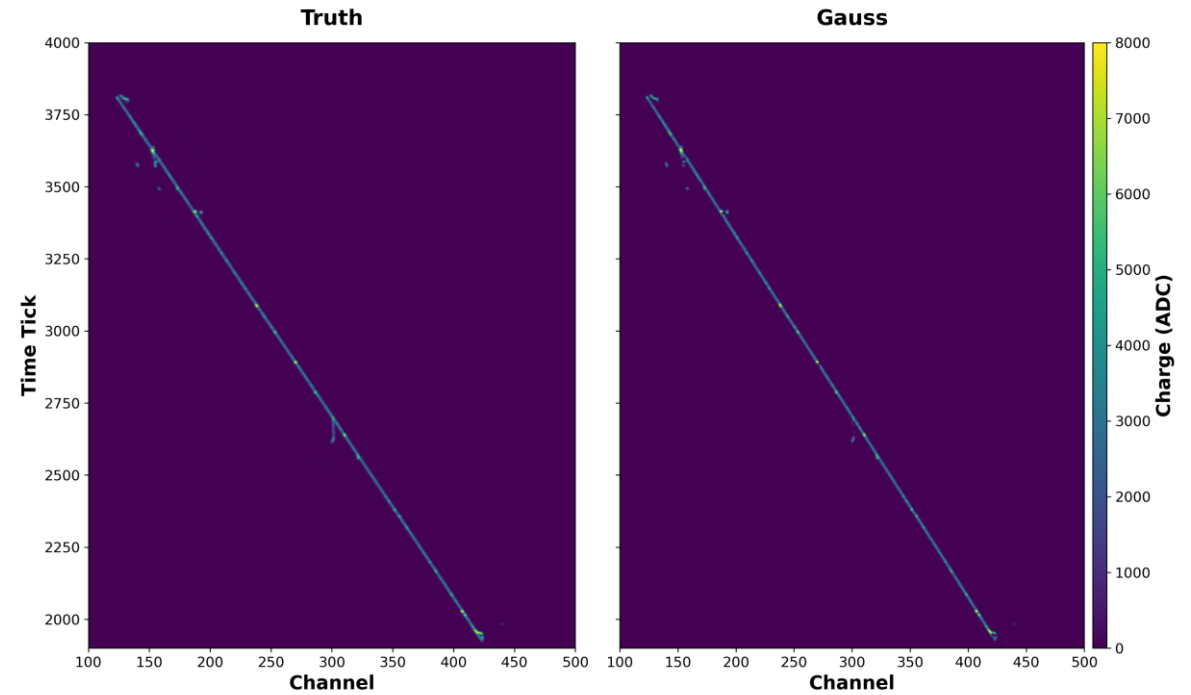
- PDVD w/ wrong PDSP filter

2D Frame Comparison (Truth vs Gauss)



- PDVD w/ PDHD filter

2D Frame Comparison (Truth vs Gauss)



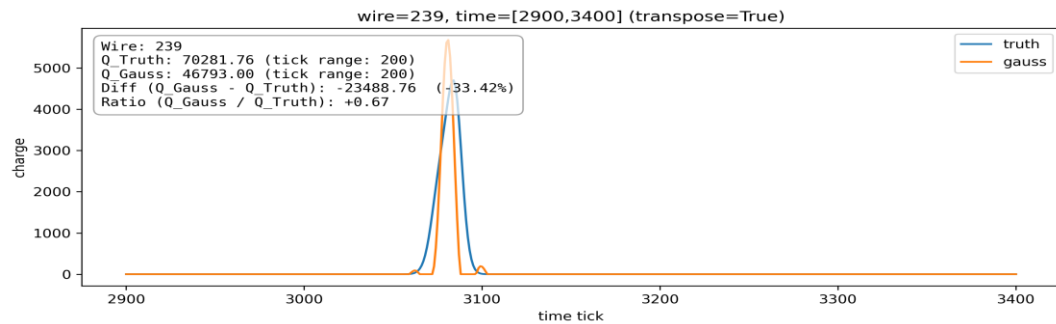
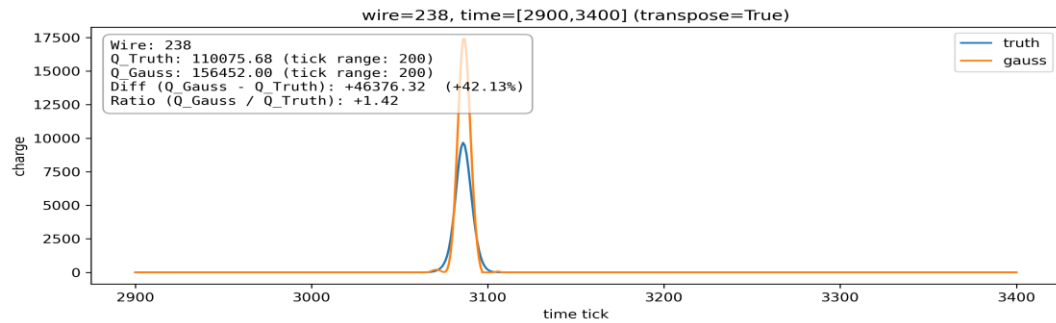
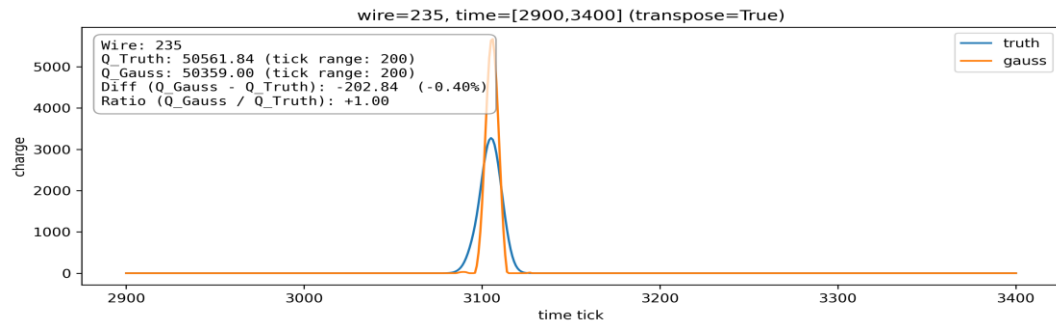
One cosmic track (across ~300 channels) on U plane

1. PDVD DNN Dataset Generation

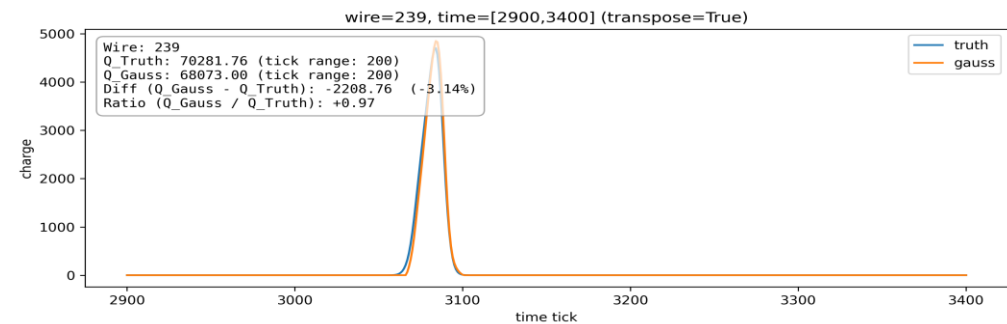
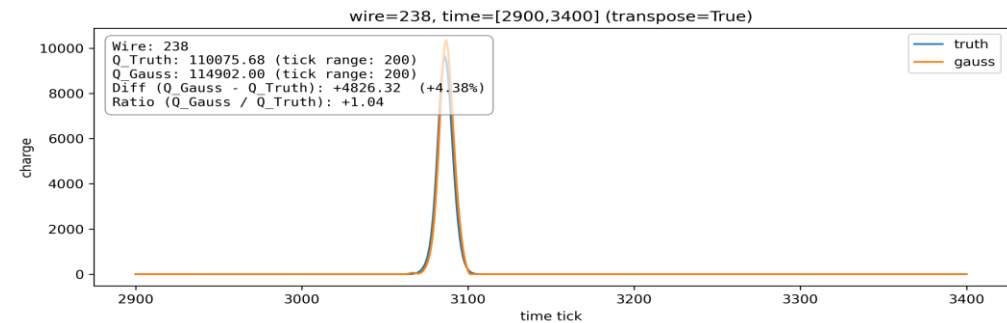
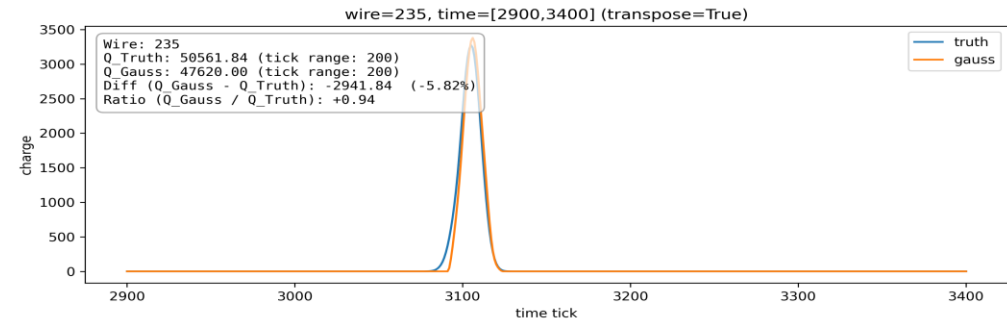
Waveform Analysis: Truth & Gauss Charge comparison

1D Waveform of Truth & Gauss

- PDVD w/ wrong PDSP filter



- PDVD w/ PDHD filter

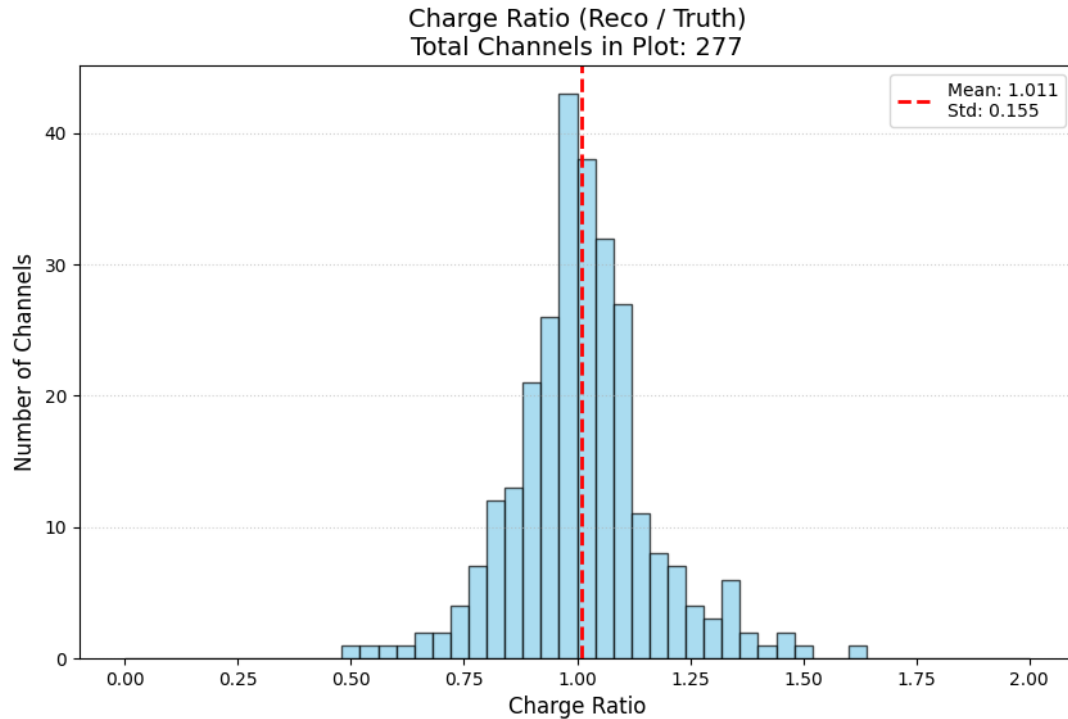


1. PDVD DNN Dataset Generation

Waveform Analysis: Truth & Gauss Charge comparison

Charge Ratio Distributions

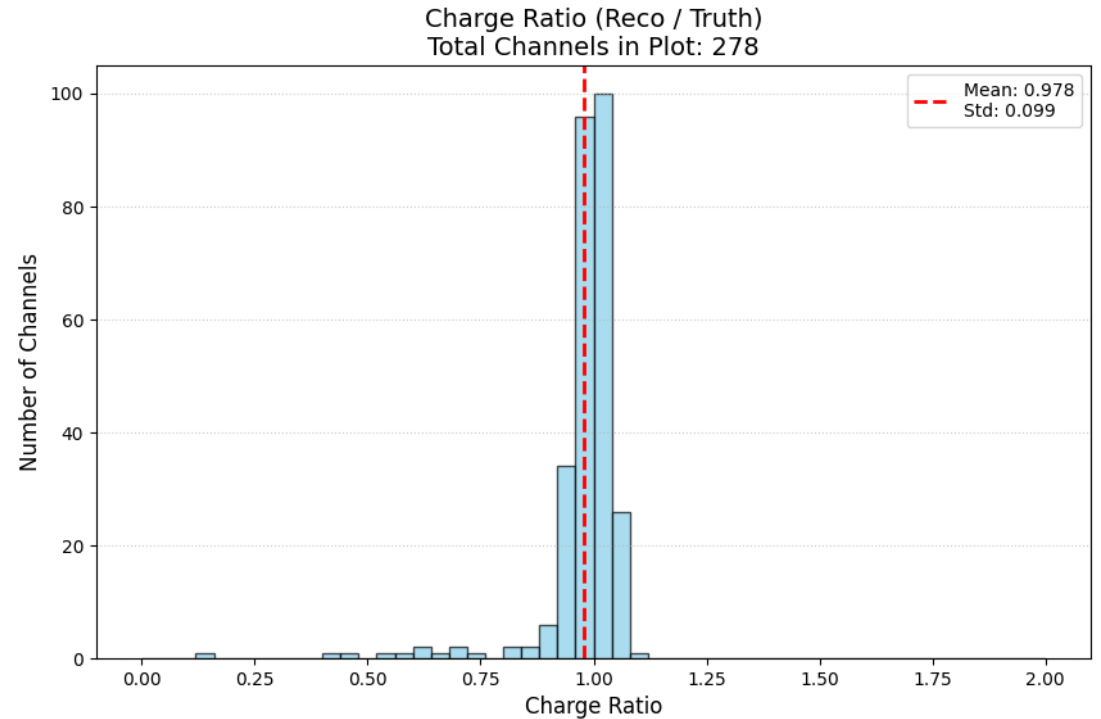
- PDVD w/ wrong PDSP filter



The number of channels

- $0.9 < ratio < 1.1$: 171 channels (61.5%)
- $0.75 < ratio < 1.25$: 248 channels (89.2%)

- PDVD w/ PDHD filter



The number of channels

- $0.9 < ratio < 1.1$: 260 channels (93.5%)
- $0.75 < ratio < 1.25$: 267 channels (96.0%)

Memory Consumption Issue on PD-HD APA1 DNNROI Configuration

APA1 Specific configuration due to field response problem

- V plane: PlaneSelector (Copy gauss frame into dnnsp frame)

```
local dnnroi_v = if apaid==0 then pg.pnode({
  type: "PlaneSelector",
  name: prename+"v",
  data: {
```

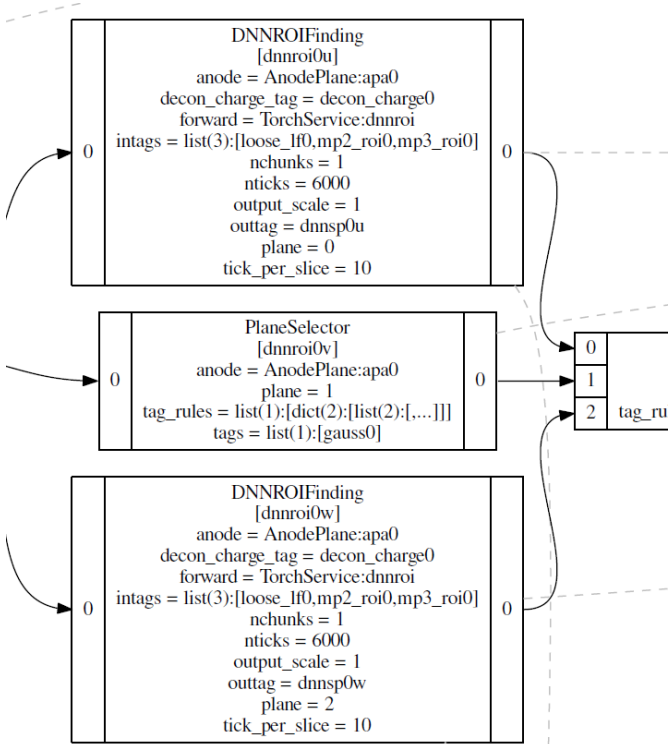
```
}, nin=1, nout=1, uses=[anode])
else pg.pnode({
  type: "DNNROIFinding",
  name: prename+"v",
  data: {
    anode: wc.tn(anode)
```

- W plane: DNNROIFinding (Apply DNN SP instead of v plane)

```
local dnnroi_w = if apaid==0 then pg.pnode({
  type: "DNNROIFinding",
  name: prename+"w",
  data: {
```

```
local dnnroi_w = if apaid==0 then pg.pnode({
  type: "DNNROIFinding",
  name: prename+"w",
  data: {
    anode: wc.tn(anode),
```

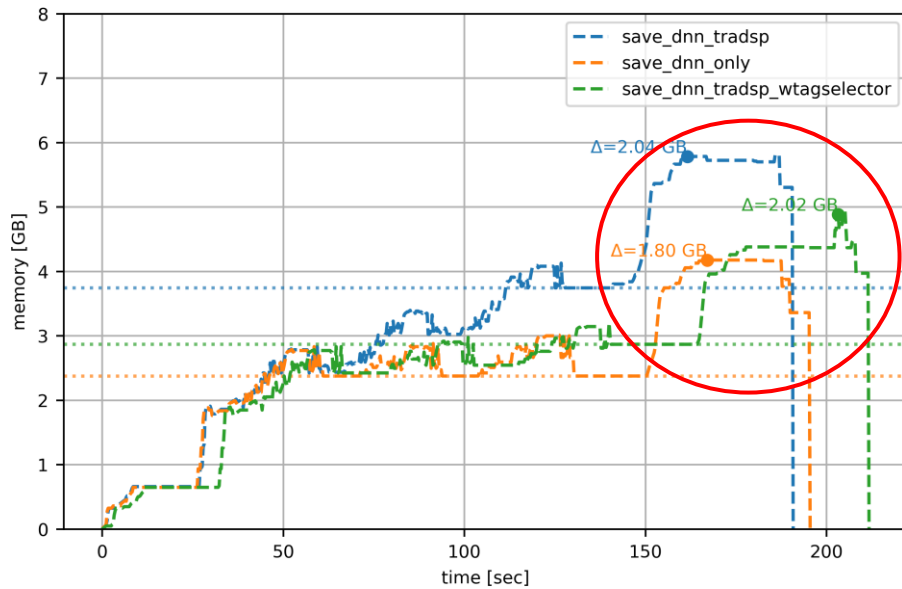
pdhd/dnnroi.jsonnet



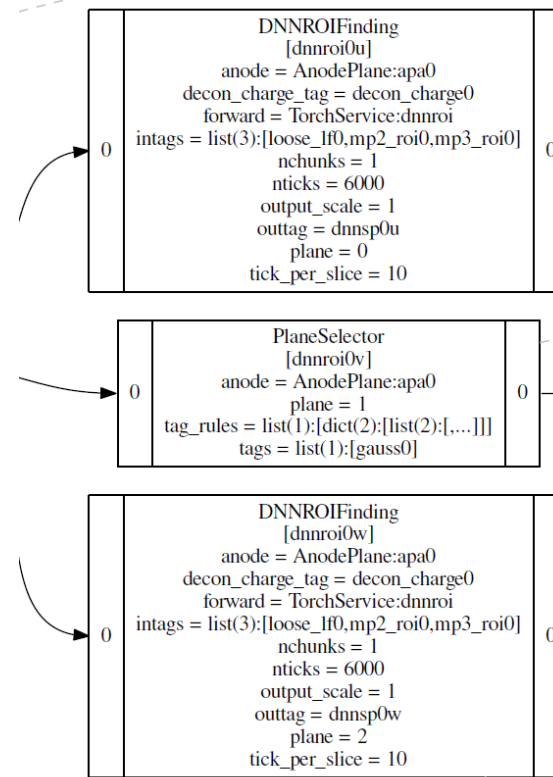
Memory Consumption Issue on PD-HD APA1 DNNROI Configuration

Changing dnnroi.jsonnet configuration

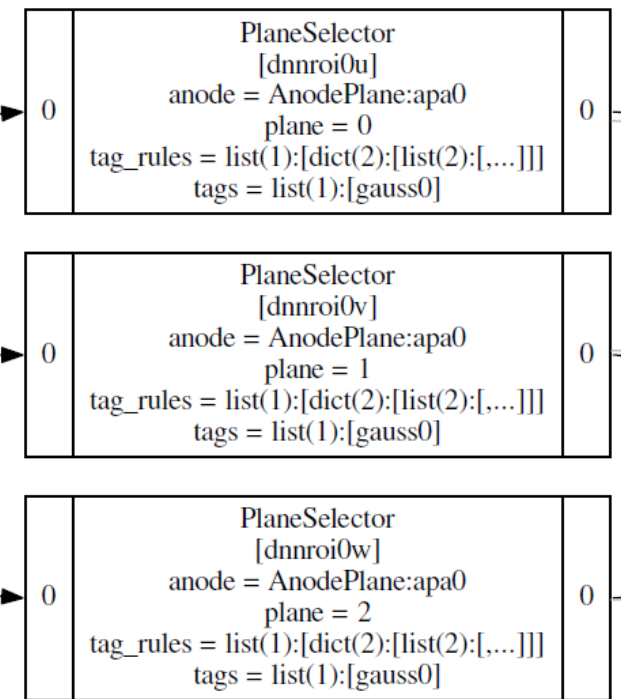
- > Can this change effects the memory usage on APA1?
- > Modifying the configuration file (Add function to choose DNNROIFinding or PlaneSelector node)



APA1 with DNN SP on U,W planes



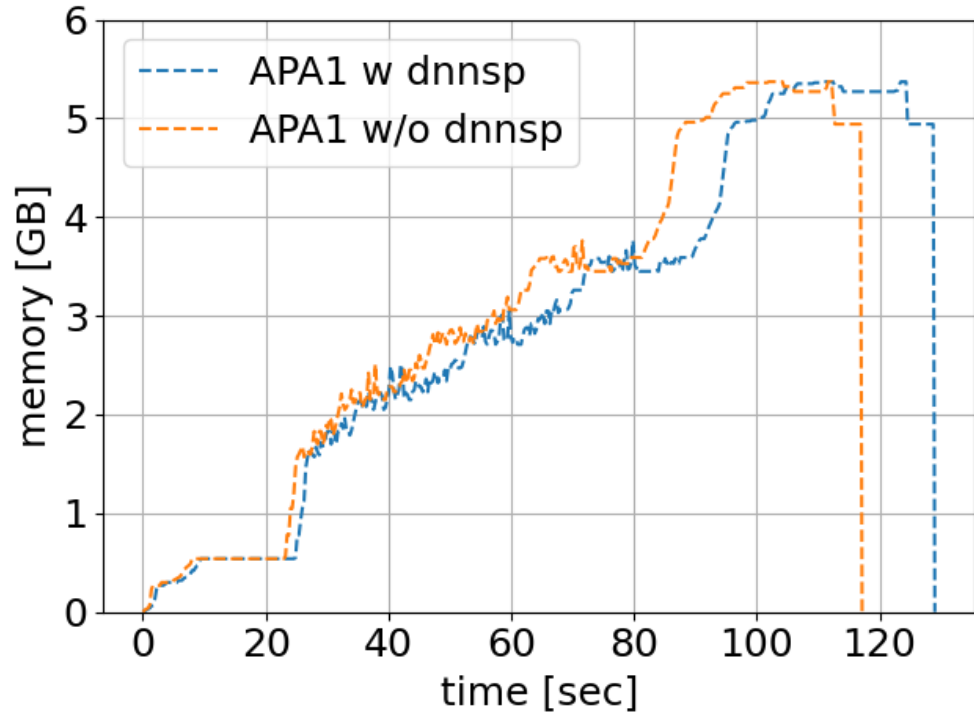
APA1 without DNN SP



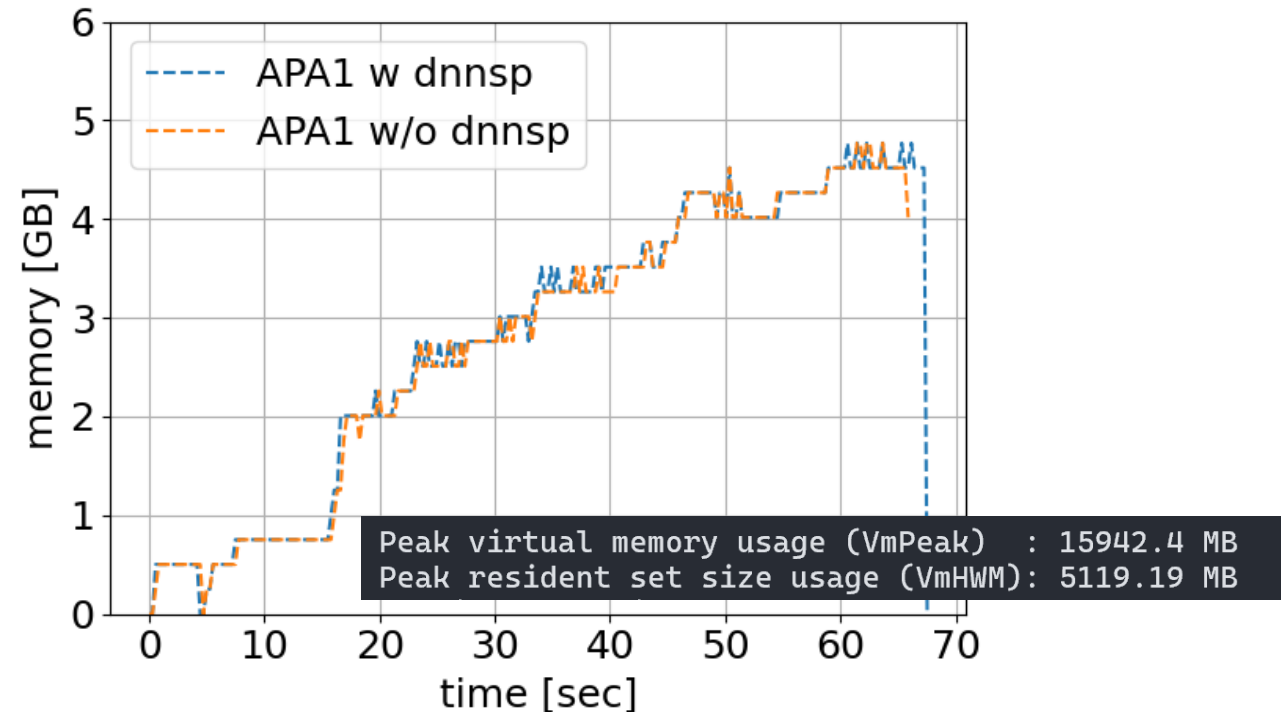
Memory Consumption Issue on PD-HD APA1

Memory Usage Comparison

- dunegpvm (total mem: 10GB)



- WC GPU machine (total mem: 251GB)



- The discrepancy in the curves across different servers is due to hardware differences.
- However, there are no differences regardless of whether DNN SP is applied

- >DNN SP is always applied for planes regardless of the configuration?
- >Remove DNN SP nodes exactly for APA1 only and check the memory usage

Backup