

CLAS12 Time-of-Flight Bank Definitions

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tof-bankdefs.tex – v3.0

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[
{
  "bank": "FTOF::rawhits",
  "group": 1211,
  "info": "reconstructed hit info from L/R FTOF PMTs",
  "items": [
    {"name":"id", "id":1, "type":"int16", "info":"id of the hit"},
    {"name":"status", "id":2, "type":"int16", "info":"status of the hit"},
    {"name":"sector", "id":3, "type":"int8", "info":"sector of FTOF"},
    {"name":"layer", "id":4, "type":"int8", "info":"panel id of FTOF (1-1A, 2-1B, 3-2)"},
    {"name":"component", "id":5, "type":"int16", "info":"paddle id of FTOF"},
    {"name":"energy_left", "id":6, "type":"float", "info":"E dep (MeV) from L PMT"},
    {"name":"energy_right", "id":7, "type":"float", "info":"E dep (MeV) from R PMT"},
    {"name":"time_left", "id":8, "type":"float", "info":"Hit time (ns) from L PMT"},
    {"name":"time_right", "id":9, "type":"float", "info":"Hit time (ns) from R PMT"},
    {"name":"energy_left_unc", "id":10, "type":"float", "info":"E dep unc (MeV) from L PMT"},
    {"name":"energy_right_unc", "id":11, "type":"float", "info":"E dep unc (MeV) from R PMT"},
    {"name":"time_left_unc", "id":12, "type":"float", "info":"Hit time unc (ns) from L PMT"},
    {"name":"time_right_unc", "id":13, "type":"float", "info":"Hit time unc (ns) from R PMT"}
  ]
},
{
  "bank": "FTOF::hits",
  "group": 1212,
  "info": "reconstructed hit info from FTOF",
  "items": [
    {"name":"id", "id":1, "type":"int16", "info":"id of the hit"},
    {"name":"status", "id":2, "type":"int16", "info":"status of the hit"},
    {"name":"trackid", "id":3, "type":"int16", "info":"matched DC track id"},
    {"name":"sector", "id":4, "type":"int8", "info":"sector of FTOF"},
    {"name":"layer", "id":5, "type":"int8", "info":"panel id of FTOF (1-1A, 2-1B, 3-2)"},
    {"name":"component", "id":6, "type":"int16", "info":"paddle id of FTOF"},
    {"name":"energy", "id":7, "type":"float", "info":"E dep (MeV) of hit"},
    {"name":"time", "id":8, "type":"float", "info":"Hit time (ns)"},
    {"name":"energy_unc", "id":9, "type":"float", "info":"E dep unc (MeV) of hit"},
    {"name":"time_unc", "id":10, "type":"float", "info":"Hit time unc (ns)"},
    {"name":"x", "id":11, "type":"float", "info":"Global X coor (cm) of hit"},
    {"name":"y", "id":12, "type":"float", "info":"Global Y coor (cm) of hit"},
    {"name":"z", "id":13, "type":"float", "info":"Global Z coor (cm) of hit"},
    {"name":"x_unc", "id":14, "type":"float", "info":"Global X coor unc (cm) of hit"},
    {"name":"y_unc", "id":15, "type":"float", "info":"Global Y coor unc (cm) of hit"},
    {"name":"z_unc", "id":16, "type":"float", "info":"Global Z coor unc (cm) of hit"}
  ]
}
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{"name":"tx",          "id":17, "type":"float", "info":"Global X coor (cm) of hit from
                        DC info - trackid index"},
{"name":"ty",          "id":18, "type":"float", "info":"Global Y coor (cm) of hit from
                        DC info - trackid index"},
{"name":"tz",          "id":19, "type":"float", "info":"Global Z coor (cm) of hit from
                        DC info - trackid index"},
{"name":"adc_idx1",    "id":20, "type":"int16", "info":"index of hit with ADCL in adc bank,
                        starts at zero"},
{"name":"adc_idx2",    "id":21, "type":"int16", "info":"index of hit with ADCR in adc bank,
                        starts at zero"},
{"name":"tdc_idx1",    "id":22, "type":"int16", "info":"index of hit with TDCL in tdc bank,
                        starts at zero"},
{"name":"tdc_idx2",    "id":23, "type":"int16", "info":"index of hit with TDCR in tdc bank,
                        starts at zero"}
]
},
{
"bank": "FTOF::clusters",
"group": 1213,
"info": "reconstructed clusters from FTOF",
"items": [
{"name":"id",          "id":1, "type":"int16", "info":"id of the hit"},
{"name":"status",      "id":2, "type":"int16", "info":"status of the cluster"},
{"name":"trackid",     "id":3, "type":"int16", "info":"matched DC track id"},
{"name":"sector",      "id":4, "type":"int8",  "info":"sector of FTOF"},
{"name":"layer",       "id":5, "type":"int8",  "info":"panel id of FTOF (1-1A, 2-1B, 3-2)"},
{"name":"component",   "id":6, "type":"int16", "info":"paddle id of FTOF hit with lowest
                        paddle id in cluster "},
{"name":"energy",      "id":7, "type":"float", "info":"E dep (MeV) of the cluster"},
{"name":"time",        "id":8, "type":"float", "info":"Cluster hit time (ns)"},
{"name":"energy_unc",  "id":9, "type":"float", "info":"E dep unc (MeV) of the cluster"},
{"name":"time_unc",    "id":10, "type":"float", "info":"Cluster hit time unc (ns)"},
{"name":"x",           "id":11, "type":"float", "info":"Global X coor (cm) of cluster hit"},
{"name":"y",           "id":12, "type":"float", "info":"Global Y coor (cm) of cluster hit"},
{"name":"z",           "id":13, "type":"float", "info":"Global Z coor (cm) of cluster hit"},
{"name":"x_unc",       "id":14, "type":"float", "info":"Global X coor unc (cm) of cluster hit"},
{"name":"y_unc",       "id":15, "type":"float", "info":"Global Y coor unc (cm) of cluster hit"},
{"name":"z_unc",       "id":16, "type":"float", "info":"Global Z coor unc (cm) of cluster hit"}
]
},
{
"bank": "FTOF::matchedclusters",
"group": 1214,
"info": "matched clusters from FTOF",
"items": [
{"name":"sector",      "id":1, "type":"int8",  "info":"sector of FTOF"},
{"name":"paddle_id1A", "id":2, "type":"int16", "info":"paddle id of hit with
                        lowest paddle id in cluster for panel 1A"},
{"name":"paddle_id1B", "id":3, "type":"int16", "info":"paddle id of hit with
                        lowest paddle id in cluster for panel 1B"},
{"name":"clus_1Aid",   "id":4, "type":"int16", "info":"id of cluster in 1A"},
{"name":"clus_1Bid",   "id":5, "type":"int16", "info":"id of cluster in 1B"},
{"name":"clusSize_1A", "id":6, "type":"int16", "info":"size of cluster in 1A"},
{"name":"clusSize_1B", "id":7, "type":"int16", "info":"size of cluster in 1B"},
{"name":"tminAlgo_1B_tCorr", "id":8, "type":"float", "info":"corrected hit time using
                        tmin algorithm to compute the path length between 1A and 1B"},

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    {"name":"midbarAlgo_1B_tCorr", "id":9, "type":"float", "info":"corrected hit time using
        middle of bar algorithm to compute the path length between 1A and 1B"},
    {"name":"EmaxAlgo_1B_tCorr", "id":10, "type":"float", "info":"corrected hit time using
        Emax algorithm to compute the path length between 1A and 1B"}
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{
  "bank": "CTOF::rawhits",
  "group": 411,
  "info": "reconstructed hit info from U/D CTOF PMTs",
  "items": [
    {"name":"id", "id":1, "type":"int16", "info":"id of the hit"},
    {"name":"status", "id":2, "type":"int16", "info":"id of the hit"},
    {"name":"component", "id":3, "type":"int16", "info":"paddle id of CTOF"},
    {"name":"energy_up", "id":4, "type":"float", "info":"E dep (MeV) from U PMT"},
    {"name":"energy_down", "id":5, "type":"float", "info":"E dep (MeV) from D PMT"},
    {"name":"time_up", "id":6, "type":"float", "info":"Hit time (ns) from U PMT"},
    {"name":"time_down", "id":7, "type":"float", "info":"Hit time (ns) from D PMT"},
    {"name":"energy_up_unc", "id":8, "type":"float", "info":"E dep unc (MeV) from U PMT"},
    {"name":"energy_down_unc", "id":9, "type":"float", "info":"E dep unc (MeV) from D PMT"},
    {"name":"time_up_unc", "id":10, "type":"float", "info":"Hit time unc (ns) from U PMT"},
    {"name":"time_down_unc", "id":11, "type":"float", "info":"Hit time unc (ns) from D PMT"}
  ]
},
{
  "bank": "CTOF::hits",
  "group": 412,
  "info": "reconstructed hit info from CTOF",
  "items": [
    {"name":"id", "id":1, "type":"int16", "info":"id of the hit"},
    {"name":"status", "id":2, "type":"int16", "info":"status of the hit"},
    {"name":"trkID", "id":3, "type":"int16", "info":"match CVT track id"},
    {"name":"sector", "id":4, "type":"int8", "info":"sector of CTOF"},
    {"name":"layer", "id":5, "type":"int8", "info":"panel id of CTOF"},
    {"name":"component", "id":6, "type":"int16", "info":"paddle id of CTOF"},
    {"name":"energy", "id":7, "type":"float", "info":"E dep (MeV) of hit"},
    {"name":"time", "id":8, "type":"float", "info":"Hit time (ns)"},
    {"name":"energy_unc", "id":9, "type":"float", "info":"E dep unc (MeV) of hit"},
    {"name":"time_unc", "id":10, "type":"float", "info":"Hit time unc (ns)"},
    {"name":"x", "id":11, "type":"float", "info":"Global X coor (cm) of hit"},
    {"name":"y", "id":12, "type":"float", "info":"Global Y coor (cm) of hit"},
    {"name":"z", "id":13, "type":"float", "info":"Global Z coor (cm) of hit"},
    {"name":"x_unc", "id":14, "type":"float", "info":"Global X coor unc (cm) of hit"},
    {"name":"y_unc", "id":15, "type":"float", "info":"Global Y coor unc (cm) of hit"},
    {"name":"z_unc", "id":16, "type":"float", "info":"Global Z coor unc (cm) of hit"},
    {"name":"tx", "id":17, "type":"float", "info":"Global X coor (cm) of hit from
        CVT info -trkID index"},
    {"name":"ty", "id":18, "type":"float", "info":"Global Y coor (cm) of hit from
        CVT info - trkID index"},
    {"name":"tz", "id":19, "type":"float", "info":"Global Z coor (cm) of hit from
        CVT info - trkID index"}
  ]
}
]

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