DST, thumbnails and tmb_tree in p13

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skeleton of analysis code on DST/TMB

- code based on Marco's **analyze_example**
- added into **qcd_analysis** package
  - class **QcdDijet**, executable **QcdDijet_x**
- runs on DST and thumbnails
- should run on SAM projects (not tested yet)
- present features
  - read events (and unpack chunks in case of TMB analysis)
  - event selection based on triggers (no support for L3 MarkAndPass)
  - method **analyzeEvent** - very simple (counts only R=0.7 cone jets per event)
- test sample (p13.00.00 files produced by Christophe, 3JT15 enriched)
  - small part of run 162594 (taken on Aug 25, trigger version 8.20)
  - two d0reco versions (p13.00.00 and p13.00.00 with strict 2.5 zero suppression cut)

p13 tests

- sample size - 939 events
- computer - PIII at 700 MHz, Linux-2.4_maxopt

file type	event size	time	initialization	events/s	data flow
DST	285 kB	384 s	37 s	2.7	0.75 MB/s
TMB	24.1 kB	122 s	36 s	11	0.26 MB/s
tmb_tree	15.6 kB	6 s	–	156	2.5 MB/s

- scaling the numbers for 1 million event sample

type	size	t_{1CPU}	t_{dual}	N_{farm}	t_{farm}
DST	270 GB	103 h	17 h	13	7.9 h
TMB	23 GB	25.3 h	4.2 h	38	40 m
tmb_tree	16 GB	1.8 h	18 m	4	27 m

  - time to analyze the events on one computer is given by CPU speed
  - dual machine : 2×2 GHz
  - time on farm is given by I/O (assumed 10 MB/s)

p13 with 2.5 zero suppression

- DST havs roughly the same size ($271\,$kB)
- TMB smaller ($18.8\,$kB)
- tmb_tree slightly smaller ($15.6\,$kB)
- not too many events
  - mean number of jets per event : 4.82 vs. 3.74
    (same numbers obtained on DST, TMB, and tmb_tree level)
  - mean number of jets per event for trigger 3JT15 : 5.9 vs. 4.7