HLT Timing Summary 1

Main Info +

HLT_Ele20_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_MediumIsoPFTau20_v6 info

CMS Experiment

November 29, 2011

Contents

2.5.10

2.5.11

2.5.12 2.5.13

1	Mai	n Info		2
	1.1	Total tir	ne for all modules per event	3
2	нгл	$\Gamma_{ m Ele20}_{ m L}$	CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_MediumIsoPFTau20_v6 Info	4
	2.1	Average	module in HLT_Ele20_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_MediumIsoPFTau20_v6 time	5
	2.2	Average	module in HLT_Ele20_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_MediumIsoPFTau20_v6 running time	6
	2.3		at time for HLT_Ele20_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_MediumIsoPFTau20_v6	
	2.4		at incremental time for HLT_Ele20_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_MediumIsoPFTau20_v6	
	2.5 Running time per event for HLT_Ele20_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_MediumIsoPFTau20_v6			-
	2.0	2.5.1	hltTriggerType	
		2.5.2	$\mathrm{hltGtDigis} \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots$	
		2.5.3	hltGctDigis	
		2.5.4	hltL1GtObjectMap	
		2.5.5	hltL1extraParticles	
		2.5.6		
			hltScalersRawToDigi	
		2.5.7	hltOnlineBeamSpot	
		2.5.8	hltOfflineBeamSpot	
		2.5.9	hltL1sL1SingleEG18orL1SingleEG20	18

2.5.14	hltEcalRegionalEgammaRecHit	23
2.5.15	hltESRegionalEgammaRecHit	24
2.5.16	hltHybridSuperClustersL1Isolated	25
2.5.17	$\label{local_problem} \mbox{hltCorrectedHybridSuperClustersL1Isolated} \ \ldots \ $	26
2.5.18	hltMulti5x5BasicClustersL1Isolated	27
2.5.19	hltMulti5x5SuperClustersL1Isolated	
2.5.20	$hlt Multi 5x 5 End cap Super Clusters With Preshower L1 Isolated \\ \ldots \\ $	
2.5.21	$hlt Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Isolated \\$	30
2.5.22	hltHybridSuperClustersL1NonIsolated	
2.5.23	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	
2.5.24	$\label{lem:likelihood} {\tt hltCorrectedHybridSuperClustersL1NonIsolated} \qquad \ldots \qquad $	
2.5.25	$hlt Multi 5x 5 Basic Clusters L1 Non Isolated \\ \ldots \\ $	
2.5.26	$hlt Multi 5x 5 Super Clusters L1 Non Isolated \\ \ldots \\ $	
2.5.27	$hlt Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated \\ \ldots \\ $	
2.5.28	$hlt Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated Temp \\ \ldots \\ \ldots \\ \ldots \\ \ldots$	37
2.5.29	$hlt Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated \\ \ldots \\ $	
2.5.30	hltL1IsoRecoEcalCandidate	39
2.5.31	hltL1NonIsoRecoEcalCandidate	40
2.5.32	$hlt EGRegional L1 Single EG18 or L1 Single EG20 \ldots \ldots$	
2.5.33	$hlt EG20 EtFilter L1 Single EG18 or L1 Single EG20 \ldots \ldots$	42
2.5.34	hltL1IsoHLTClusterShape	
2.5.35	hltL1NonIsoHLTClusterShape	
2.5.36	$hlt EG20 Calo IdT Cluster Shape Filter L1 Single EG18 or L1 Single EG20 \\ \ldots \\ $	
2.5.37	hltL1IsolatedPhotonEcalIsol	
2.5.38	$\label{lem:hltL1NonIsolatedPhotonEcalIsol} hltL1NonIsolatedPhotonEcalIsol \dots \dots$	
2.5.39	$hlt Ele 20 Calo Id T Calo Iso T E cal Iso Filter L1 Single EG18 or L1 Single EG20 \ldots \ldots$	
2.5.40	hltHcalDigis	
2.5.41	hltHbhereco	50
2.5.42	hltHfreco	
2.5.43	$\label{local_potential} hlt L1 Isolated Photon Hcal For HE \ldots $	
2.5.44	$\label{lem:hltL1NonIsolatedPhotonHcalForHE} hltL1NonIsolatedPhotonHcalForHE \\ \dots \\ $	
2.5.45	$hlt Ele 20 Calo Id VT Calo Iso THE Filter L1 Single EG18 or L1 Single EG20 \\ \ldots \\ \ldots \\ \ldots \\ \ldots \\ \ldots \\ \ldots \\ \ldots$	
2.5.46	hltL1IsolatedPhotonHcalIsol	55

2.5.47	httlNonisolatedPhotonHcalisol	
2.5.48	$hlt Ele 20 Calo Id VT Calo Iso TH cal Iso Filter L1 Single EG18 or L1 Single EG20 \ldots \ldots$	57
2.5.49	hltSiPixelDigis	58
2.5.50	hltSiPixelClusters	59
2.5.51	hltSiPixelRecHits	60
2.5.52	$hlt SiStrip Excluded FED List Producer \ . \ . \ . \ . \ . \ . \ . \ . \ . \ $	61
2.5.53	hltSiStripRawToClustersFacility	62
2.5.54	hltSiStripClusters	63
2.5.55	hltL1IsoStartUpElectronPixelSeeds	64
2.5.56	hltL1NonIsoStartUpElectronPixelSeeds	65
2.5.57	$hlt Ele 20 Calo Id VT Calo Iso TPixel Match Filter L1 Single EG18 or L1 Single EG20 \\ \ldots \\ $	66
2.5.58	hltCkfL1IsoTrackCandidates	
2.5.59	hltCtfL1IsoWithMaterialTracks	68
2.5.60	hltPixelMatchElectronsL1Iso	69
2.5.61	hltCkfL1NonIsoTrackCandidates	
2.5.62	hltCtfL1NonIsoWithMaterialTracks	71
2.5.63	hltPixelMatchElectronsL1NonIso	
2.5.64	$hlt Ele 20 Calo Id VT Calo Iso TOne OEMinus One OPF il ter L1 Single EG18 or L1 Single EG20 \\ \ldots \\ \ldots \\ \ldots \\ \ldots$	73
2.5.65	hltElectronL1IsoDetaDphi	74
2.5.66	hltElectronL1NonIsoDetaDphi	
2.5.67	$hlt Ele 20 Calo Id VT Calo Iso TTrk Id TD eta Filter L1 Single EG18 or L1 Single EG20 \\ \ldots \\ $	76
2.5.68	$hlt Ele 20 Calo Id VT Calo Iso TTrk Id TD phi Filter L1 Single EG18 or L1 Single EG20 \\ \ldots \\ $	77
2.5.69	hltL1IsoEgammaRegionalPixelSeedGenerator	78
2.5.70	hltL1IsoEgammaRegionalCkfTrackCandidates	79
2.5.71	$hlt L1 Iso Egamma Regional CTFF in al Fit With Material \\ \ldots \\ $	80
2.5.72	$hlt L1 Non Iso Egamma Regional Pixel Seed Generator \ldots \ldots \ldots \ldots \ldots \ldots \ldots$	81
2.5.73	hltL1NonIsoEgammaRegionalCkfTrackCandidates	82
2.5.74	hltL1NonIsoEgammaRegionalCTFFinalFitWithMaterial	83
2.5.75	hltL1IsoElectronTrackIsol	84
2.5.76	hltL1NonIsoElectronTrackIsol	85
2.5.77	$hlt Ele 20 Calo Id VT Calo Iso TTrk Id TTrk Iso TTrack Iso Filter L1 Single EG18 or L1 Single EG20 \\ \ldots \\ $	
2.5.78	hltEcalRegionalRestFEDs	87
2.5.79	hltEcalRecHitAll	88

2.5.80	hltHoreco
2.5.81	hltTowerMakerForPF
2.5.82	hltAntiKT5CaloJetsPF
2.5.83	hltAntiKT5CaloJetsPFEt5
2.5.84	hltTauJet5
2.5.85	hltOverlapFilterIsoEle20CaloJet5
2.5.86	hltMuonDTDigis
2.5.87	hltDt1DRecHits
2.5.88	hltDt4DSegments
2.5.89	hltMuonCSCDigis
2.5.90	hltCsc2DRecHits
2.5.91	hltCscSegments
2.5.92	hltMuonRPCDigis
2.5.93	hltRpcRecHits
2.5.94	hltL2MuonSeeds
2.5.95	hltL2Muons
2.5.96	hltL2MuonCandidates
2.5.97	hltL3TrajSeedOIState
2.5.98	hltL3TrackCandidateFromL2OIState
2.5.99	hltL3TkTracksFromL2OIState
2.5.100	hltL3MuonsOIState
2.5.101	hltL3TrajSeedOIHit
2.5.102	hltL3TrackCandidateFromL2OIHit
2.5.103	hltL3TkTracksFromL2OIHit
2.5.104	hltL3MuonsOIHit
2.5.105	hltL3TkFromL2OICombination
2.5.106	hltL3TrajSeedIOHit
2.5.107	hltL3TrackCandidateFromL2IOHit
2.5.108	hltL3TkTracksFromL2IOHit
2.5.109	hltL3MuonsIOHit
2.5.110	hltL3TrajectorySeed
2.5.111	$hltL3TrackCandidateFrom L2 \ldots \ldots 120$
2.5.112	hltL3TkTracksFromL2

2.5.113	hltL3MuonsLinksCombination
2.5.114	hltL3Muons
2.5.115	hltL3MuonCandidates
2.5.116	hltPixelTracks
2.5.117	hltPixelVertices
2.5.118	hltPFJetPixelSeedsFromPixelTracks
2.5.119	hltPFJetCkfTrackCandidates
2.5.120	hltPFJetCtfWithMaterialTracks
2.5.121	hltPFlowTrackSelectionHighPurity
2.5.122	$hlt Track Refs For Jets Iter 0 \ldots 131$
2.5.123	hltAntiKT5TrackJetsIter0
2.5.124	hltTrackAndTauJetsIter0
2.5.125	hltIter1ClustersRefRemoval
2.5.126	hltIter1SiStripClusters
2.5.127	hltIter1PFJetPixelSeeds
2.5.128	hltIter1PFJetCkfTrackCandidates
2.5.129	hltIter1PFJetCtfWithMaterialTracks
2.5.130	hltIter1PFlowTrackSelectionHighPurityLoose
2.5.131	hltIter1PFlowTrackSelectionHighPurityTight
2.5.132	hltIter1PFlowTrackSelectionHighPurity
2.5.133	hltIter1Merged
2.5.134	hltTrackRefsForJetsIter1
2.5.135	hltAntiKT5TrackJetsIter1
2.5.136	hltTrackAndTauJetsIter1
2.5.137	hltIter2ClustersRefRemoval
2.5.138	hltIter2SiStripClusters
2.5.139	hltIter2PFJetPixelSeeds
2.5.140	hltIter2PFJetCkfTrackCandidates
2.5.141	hlt Iter 2 PF Jet Ctf With Material Tracks
2.5.142	hltIter2PFlowTrackSelectionHighPurity
2.5.143	hltIter2Merged
2.5.144	hltTrackRefsForJetsIter2
2.5.145	hltAntiKT5TrackJetsIter2

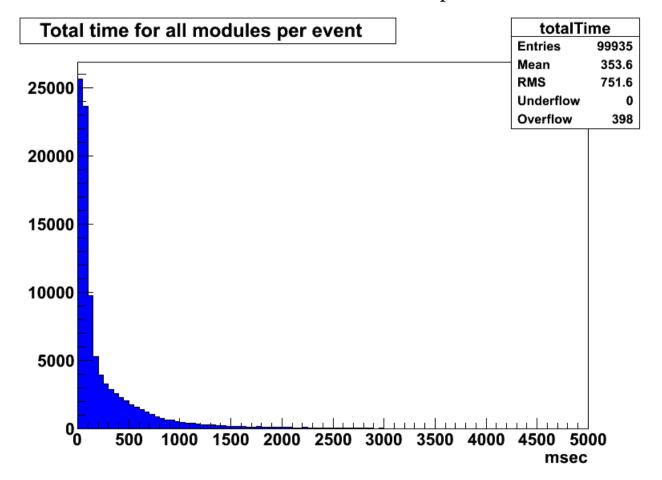
2.5.146	hltTrackAndTauJetsIter2
2.5.147	hltIter3ClustersRefRemoval
2.5.148	hltIter3SiStripClusters
2.5.149	$hlt Iter 3 PF Jet Mixed Seeds \dots \dots$
2.5.150	hlt Iter 3 PF Jet Ckf Track Candidates
2.5.151	$hlt Iter 3 PF Jet Ctf With Material Tracks \dots \dots$
2.5.152	hltIter3PFlowTrackSelectionHighPurityLoose
2.5.153	hltIter3PFlowTrackSelectionHighPurityTight
2.5.154	
2.5.155	
2.5.156	hltTrackRefsForJetsIter3
2.5.157	hltAntiKT5TrackJetsIter3
2.5.158	hltTrackAndTauJetsIter3
2.5.159	hltIter4ClustersRefRemoval
2.5.160	hltIter4SiStripClusters
2.5.161	$hlt Iter 4PF Jet Pixel Less Seeds \\ \dots \\ $
2.5.162	hlt Iter 4 PF Jet Ckf Track Candidates
2.5.163	hltIter4PFJetCtfWithMaterialTracks
2.5.164	hltIter4PFlowTrackSelectionHighPurity
2.5.165	hltIter4Merged
2.5.166	hltPFMuonMerging
2.5.167	hltMuonLinks
2.5.168	hltMuons
2.5.169	hltEcalRegionalESRestFEDs
2.5.170	
2.5.171	hltParticleFlowRecHitECAL
2.5.172	hltParticleFlowRecHitHCAL
2.5.173	hltParticleFlowRecHitPS
2.5.174	hltParticleFlowClusterECAL
2.5.175	11101 02 010101 10 11 01 01 01 01 01 01 01 01 01
2.5.176	
2.5.177	hltParticleFlowClusterHFHAD
2.5.178	hltParticleFlowClusterPS

2.5.179	hltLightPFTracks
2.5.180	hltParticleFlowBlockForTaus
2.5.181	hltParticleFlowForTaus
2.5.182	hltAntiKT5PFJetsForTaus
2.5.183	hltAntiKT5ConvPFJetsForTaus
2.5.184	hltPFJet20
2.5.185	$hltPFTauJetTracksAssociator \ldots 194$
2.5.186	hltPFTauTagInfo
2.5.187	hltPFTausMediumIso
2.5.188	hltPFT au Medium Iso Track Finding Discriminator
2.5.189	$hltPFT au Medium Iso Iso lation Discriminator \\ \dots \dots \\ \dots \dots \\ \dots \dots \dots \\ \dots \dots \dots \dots \\ \dots \dots \dots \dots \\ $
2.5.190	$hlt Selected PFT aus Medium Iso Track Finding \\ \dots \\ $
2.5.191	$hlt Selected PFT aus Medium Iso Track Finding Isolation \\ \dots $
2.5.192	${\bf hltConvPFTausMediumIsoTrackFinding} \ \dots \ $
2.5.193	${\bf hltConvPFTausMediumIsoTrackFindingIsolation} \ \dots $
2.5.194	hltConvPFTausMediumIso
2.5.195	hltPFTauMediumIso20
2.5.196	$hltPFTauMediumIso20Track \\ \ \dots \\ \ \ \dots \\ \ \dots \\ \ \ \dots \\ \ \ \ \dots \\ \$
2.5.197	$hltPFTauMediumIso20TrackMediumIso \\ \ldots \\ \ldots \\ 206$
2.5.198	$hltOverlapFilterIsoEle20 MediumIsoPFT au 20 \\ \ldots \\ \ldots \\ 207$
2.5.199	hltBoolEnd

Chapter 1

Main Info

1.1 Total time for all modules per event

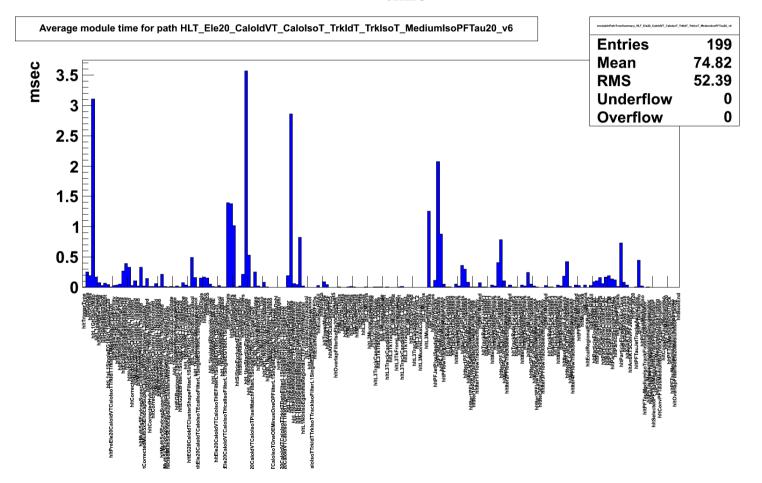


Chapter 2

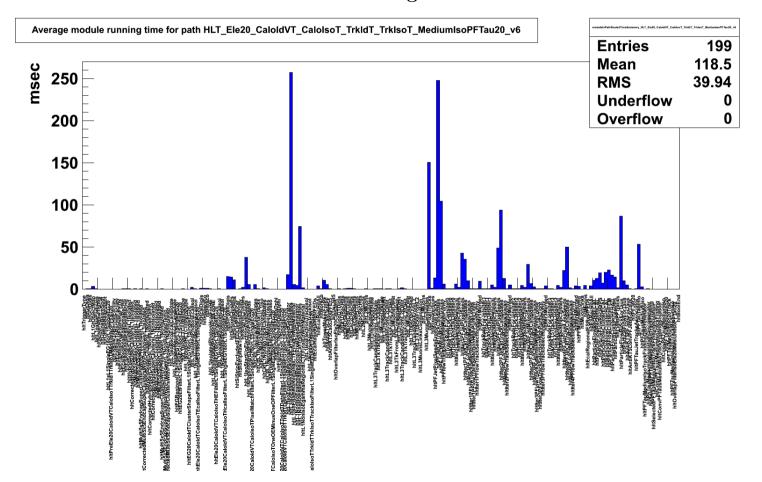
 $HLT_Ele20_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT$

Info

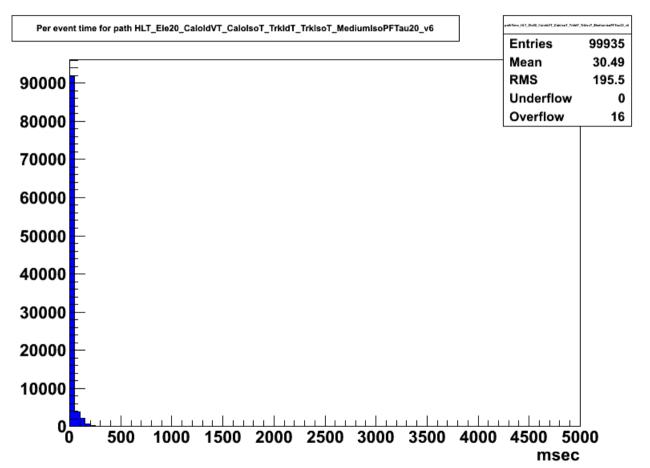
 $2.1 \quad Average \ module \ in \\ HLT_Ele20_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_MediumIsoPFTau20_v6 \\ time$



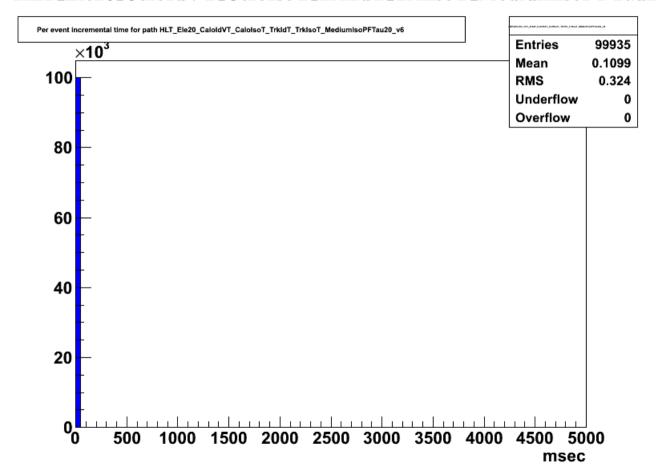
 $2.2 \quad Average \ module \ in \\ HLT_Ele20_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_MediumIsoPFTau20_v6 \\ running \ time$



2.3 Per event time for HLT_Ele20_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_MediumIsoPFTau20_v6

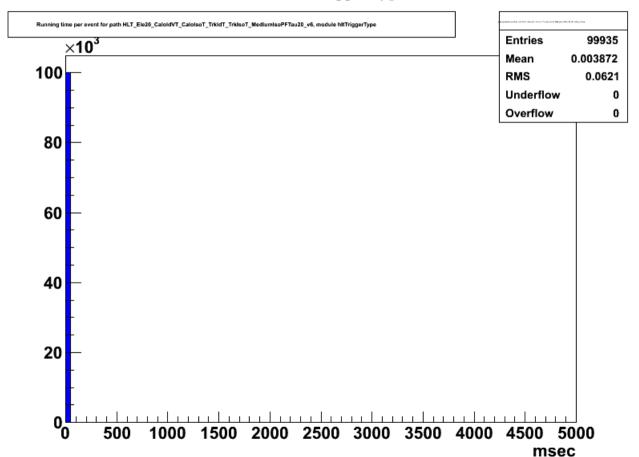


2.4 Per event incremental time for HLT_Ele20_CaloIdVT_CaloIsoT_TrkIdT_TrkIsoT_MediumIsoPFTau20_v6

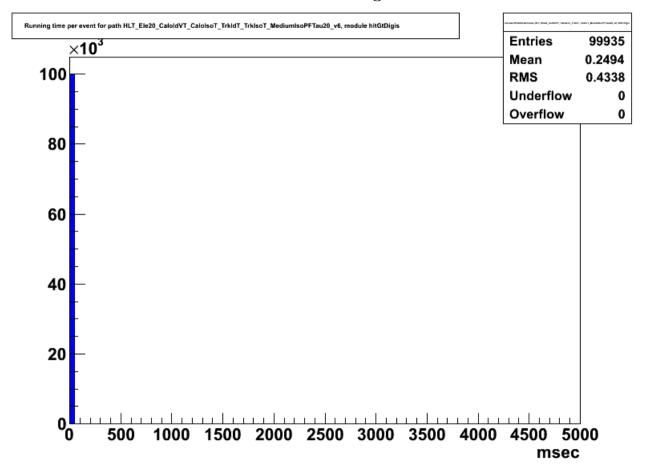


2.5 Running time per event for HLT Ele20 CaloIdVT CaloIsoT TrkIdT TrkIsoT MediumIsoPFTau20 v6

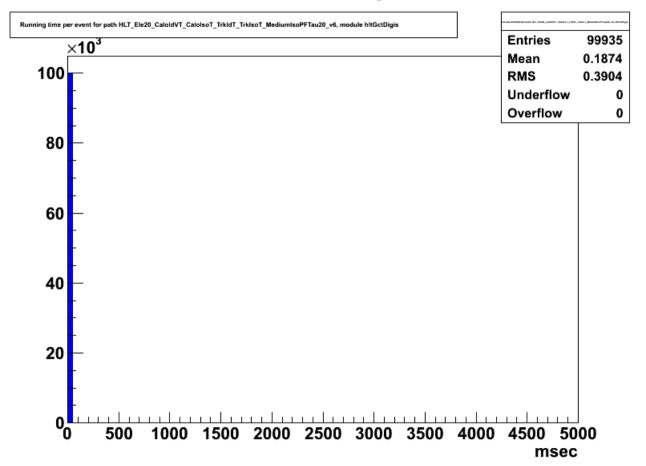
2.5.1 hltTriggerType



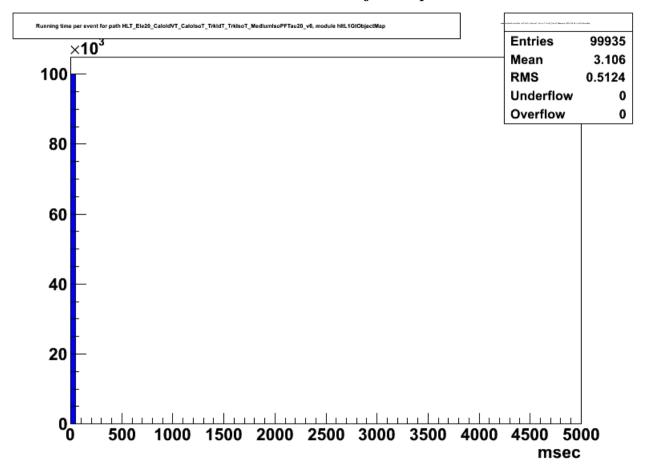
2.5.2 hltGtDigis



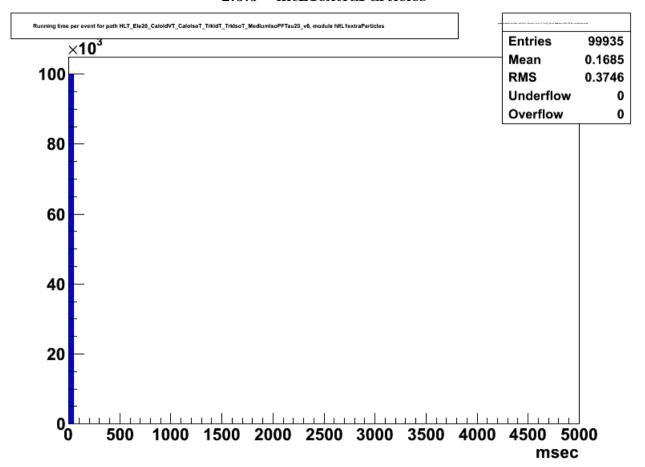
2.5.3 hltGctDigis



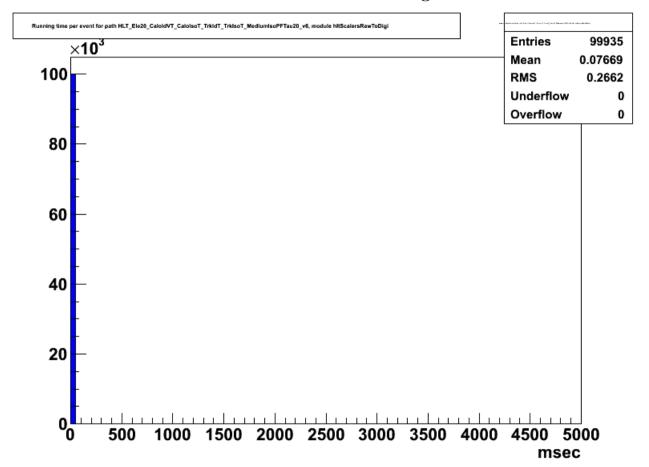
2.5.4 hltL1GtObjectMap



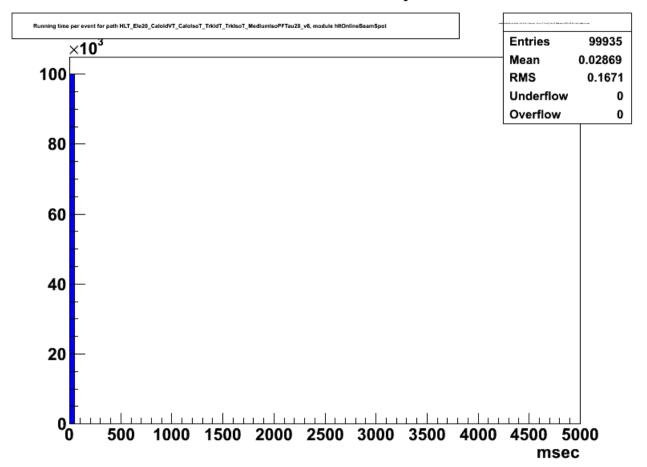
2.5.5 hltL1extraParticles



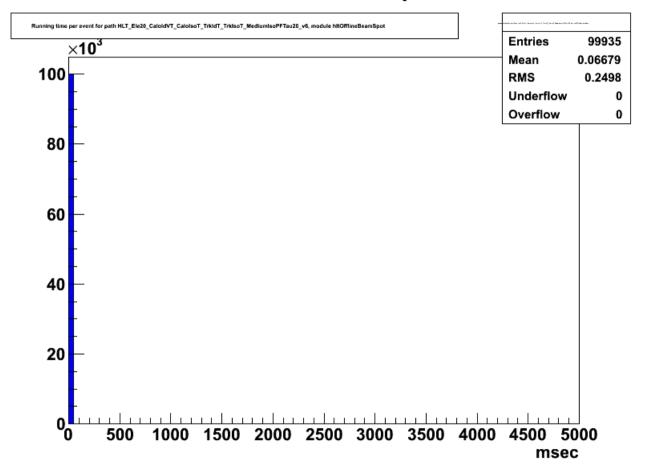
2.5.6 hltScalersRawToDigi



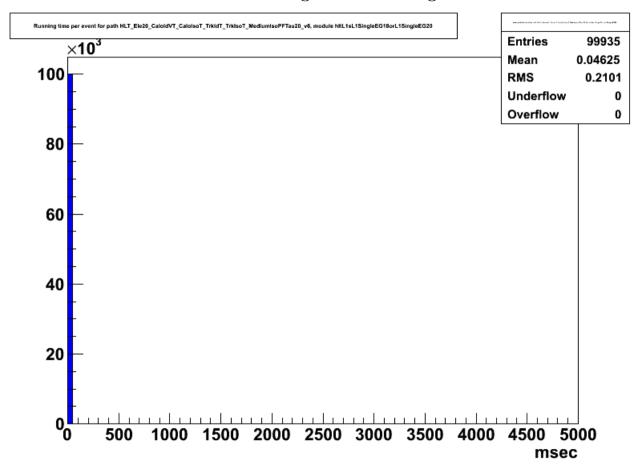
2.5.7 hltOnlineBeamSpot



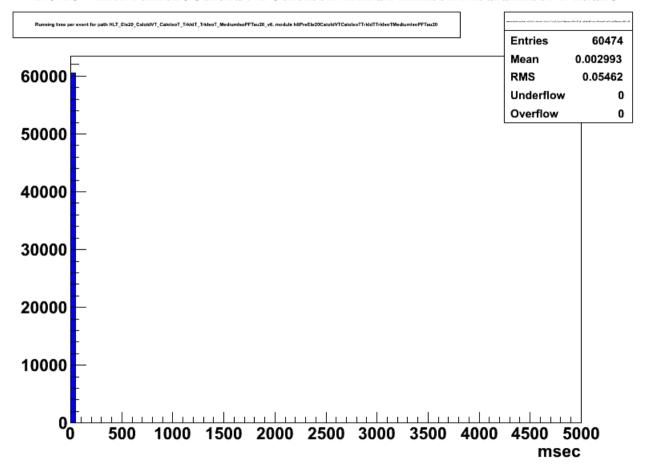
2.5.8 hltOfflineBeamSpot



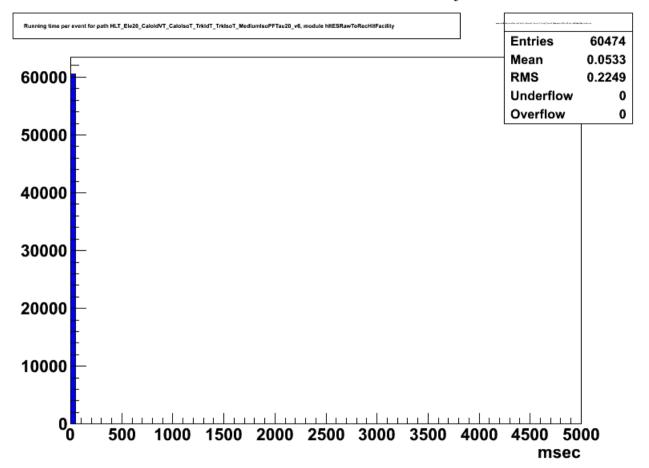
$2.5.9 \quad hltL1sL1SingleEG18 or L1SingleEG20$



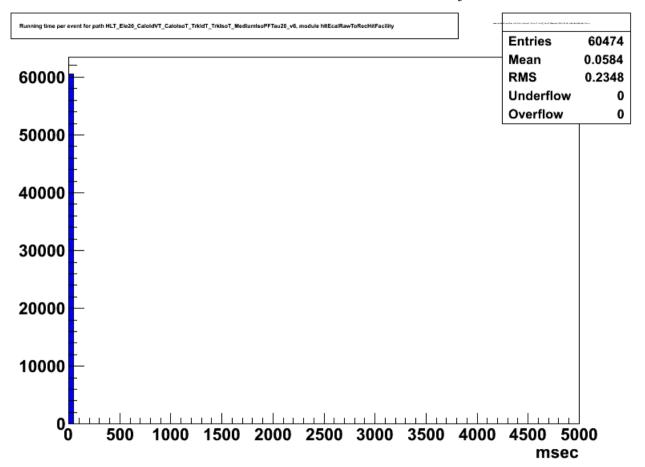
${\bf 2.5.10} \quad hlt Pre Ele 20 Calo Id VT Calo Iso TTrk Id TTrk Iso TMe dium Iso PFT au 20$



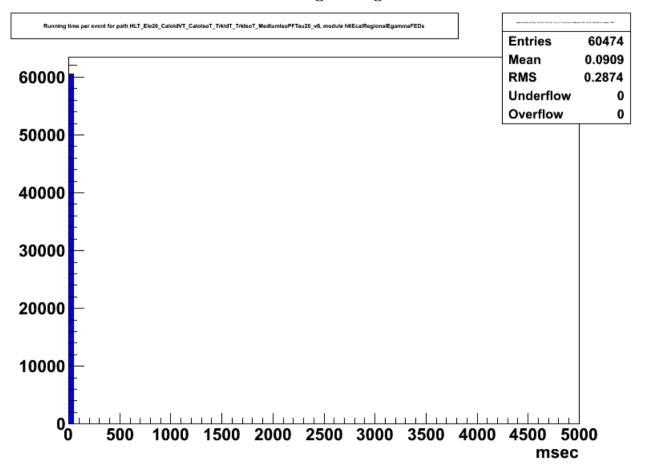
2.5.11 hltESRawToRecHitFacility



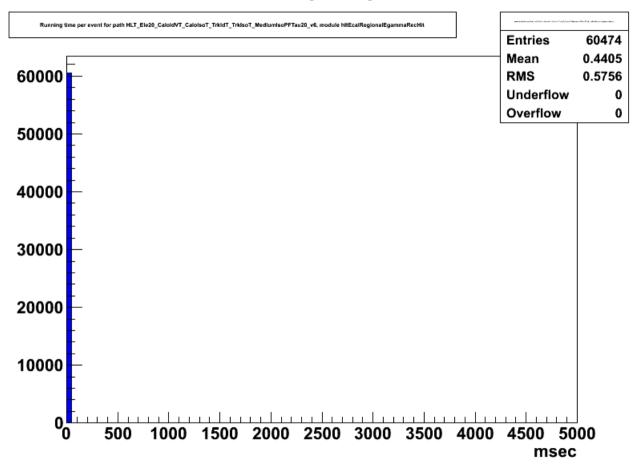
2.5.12 hltEcalRawToRecHitFacility



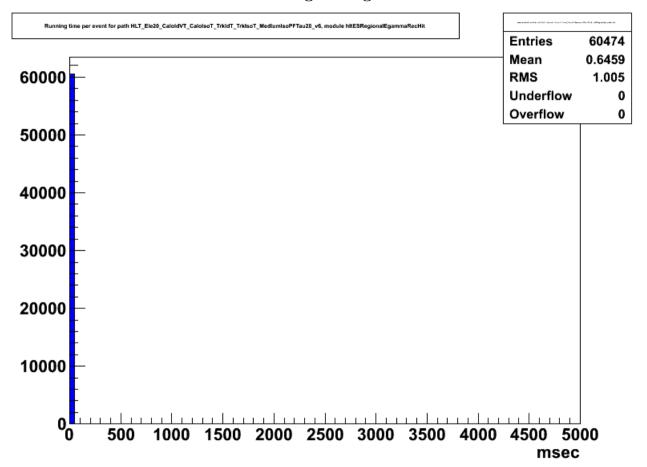
 ${\bf 2.5.13}\quad hlt Ecal Regional Egamma FEDs$



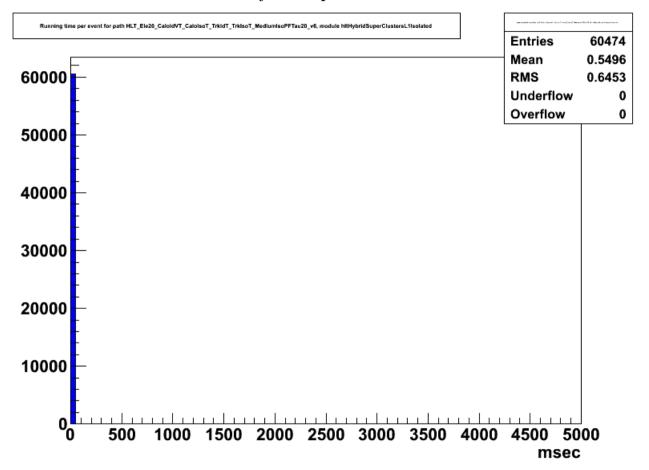
2.5.14 hltEcalRegionalEgammaRecHit



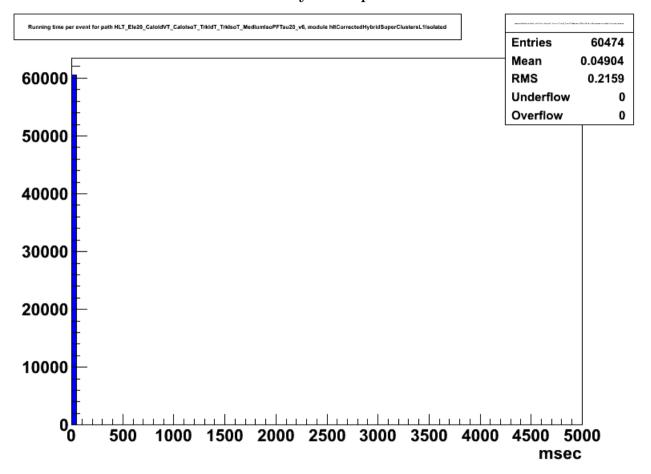
 $2.5.15 \quad hlt ESRegional Egamma Rec Hit$



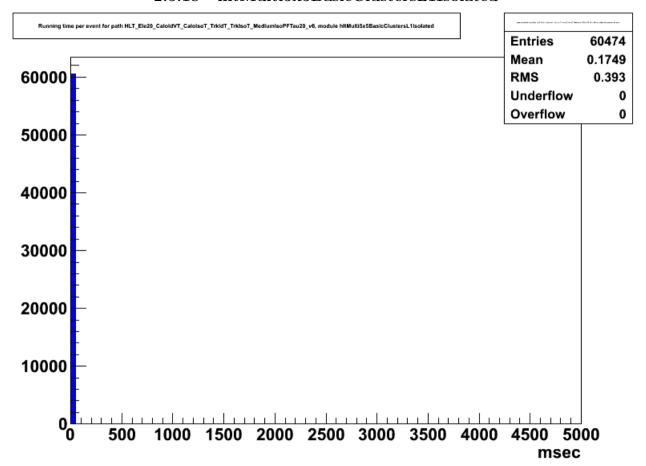
2.5.16 hltHybridSuperClustersL1Isolated



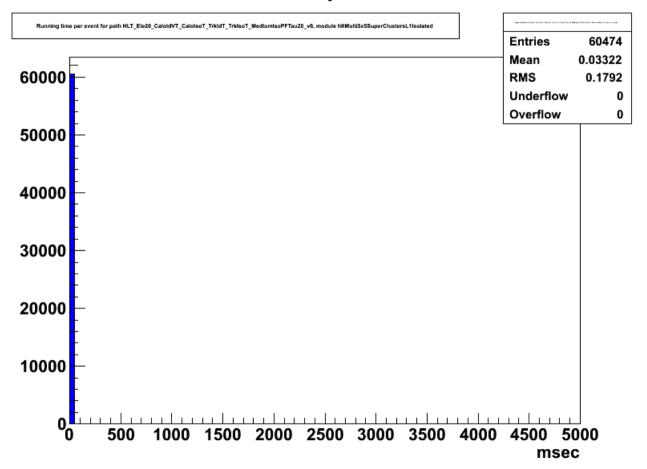
${\bf 2.5.17} \quad hlt Corrected Hybrid Super Clusters L1 I solated$



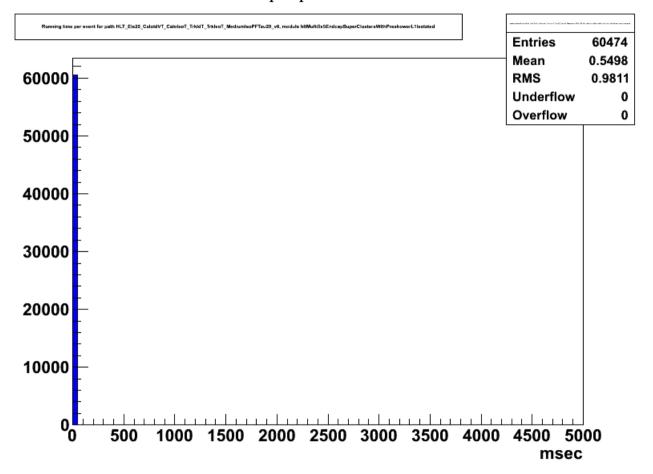
2.5.18 hltMulti5x5BasicClustersL1Isolated



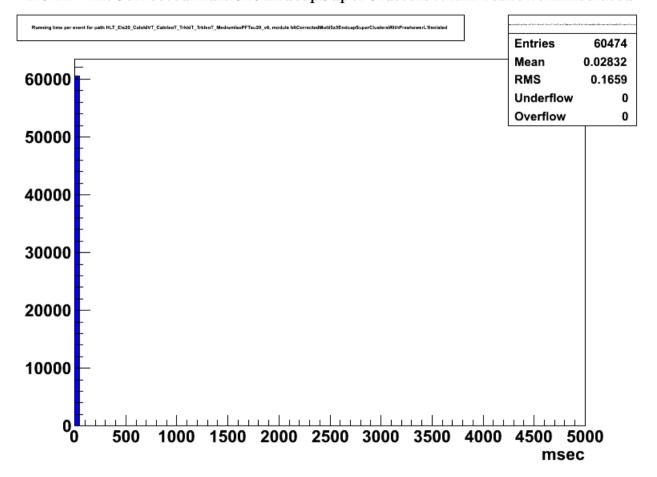
${\bf 2.5.19} \quad hlt Multi 5x 5 Super Clusters L1 I solated$



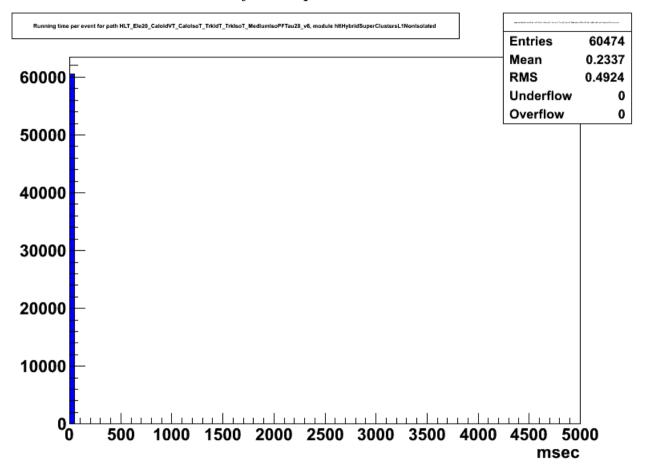
$2.5.20 \quad hlt Multi5x 5 End cap Super Clusters With Preshower L1 Isolated$



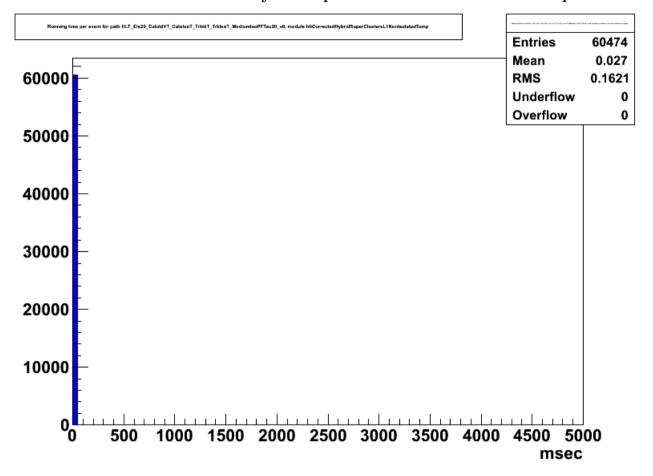
${\bf 2.5.21} \quad hlt Corrected Multi5x5 End cap Super Clusters With Preshower L1 Isolated$



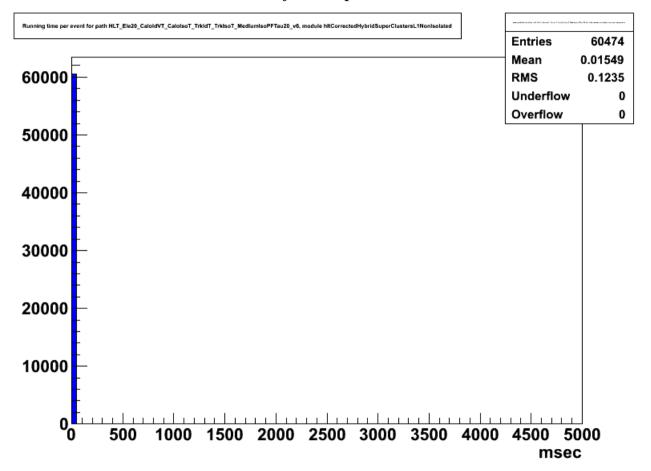
2.5.22 hltHybridSuperClustersL1NonIsolated



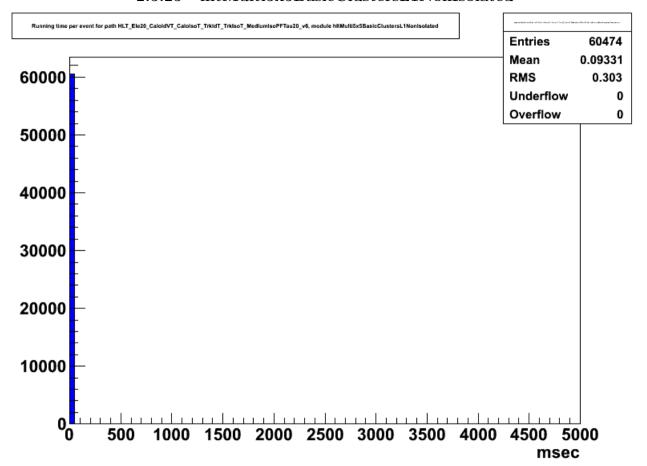
$2.5.23 \quad hlt Corrected Hybrid Super Clusters L1 Non Isolated Temp\\$



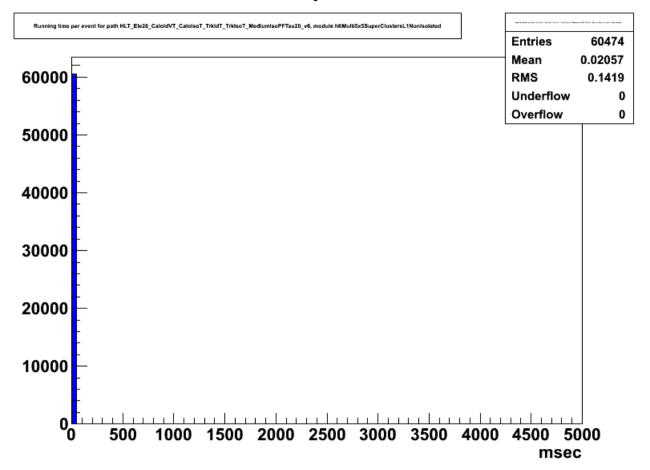
2.5.24 hltCorrectedHybridSuperClustersL1NonIsolated



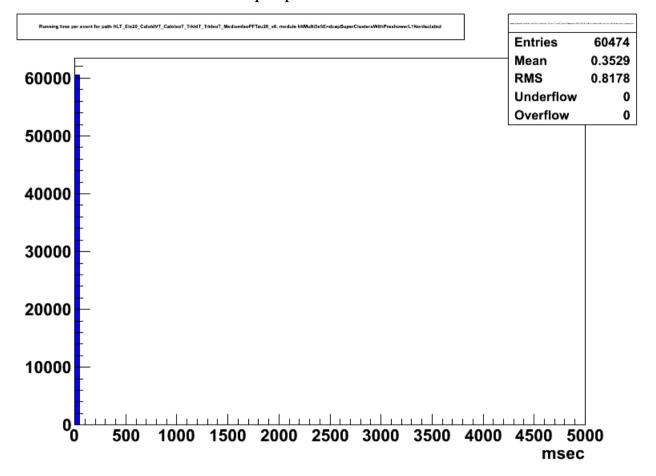
2.5.25 hltMulti5x5BasicClustersL1NonIsolated



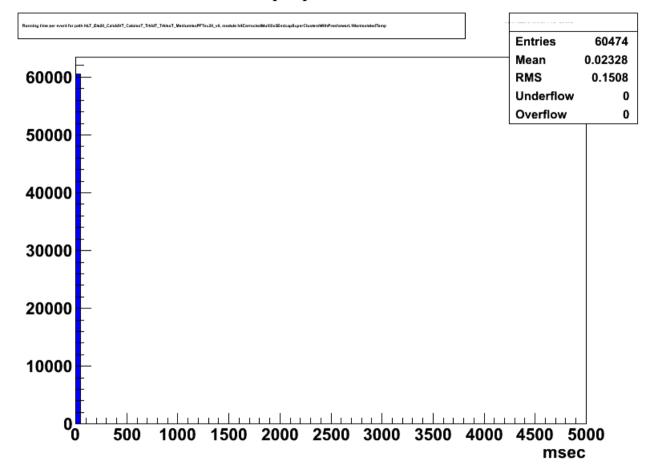
${\bf 2.5.26} \quad hlt Multi 5x 5 Super Clusters L1 Non Isolated$



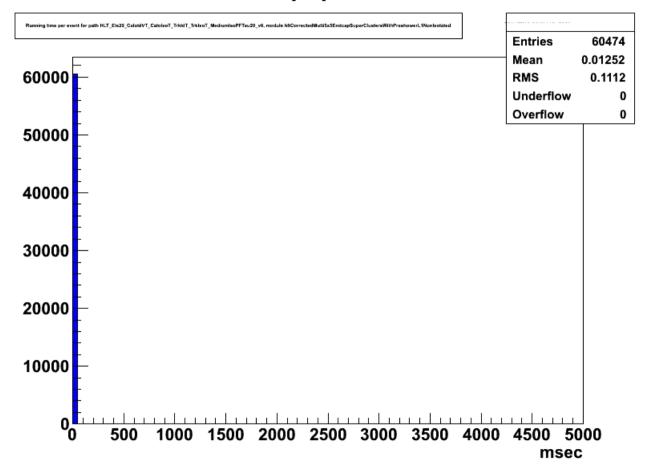
$2.5.27 \quad hlt Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated$



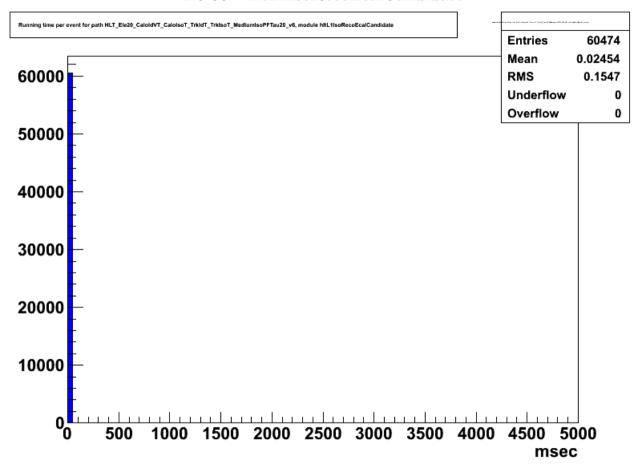
$2.5.28 \quad hlt Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated Temporal Control of the Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated Temporal Control of the Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated Temporal Control of the Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated Temporal Control of the Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated Temporal Control of the Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated Temporal Control of the Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated Temporal Control of the Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated Temporal Control of the Corrected Multi 5x 5 End cap Super Clusters With Preshower Control of the Corrected Multi 5x 5 End cap Super Clusters With Preshower Control of the Corrected Multi 5x 5 End cap Super Clusters With Preshower Control of the Corrected Multi 5x 5 End cap Super Clusters With Preshower Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control of the Corrected Multi 5x 5 End cap Super Control$



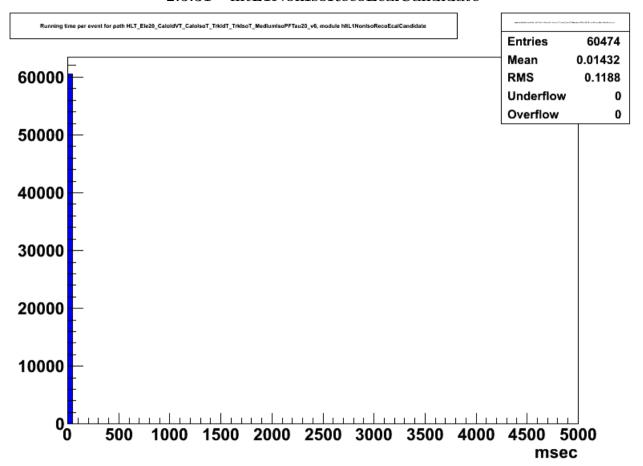
$2.5.29 \quad hlt Corrected Multi 5x 5 End cap Super Clusters With Preshower L1 Non Isolated$



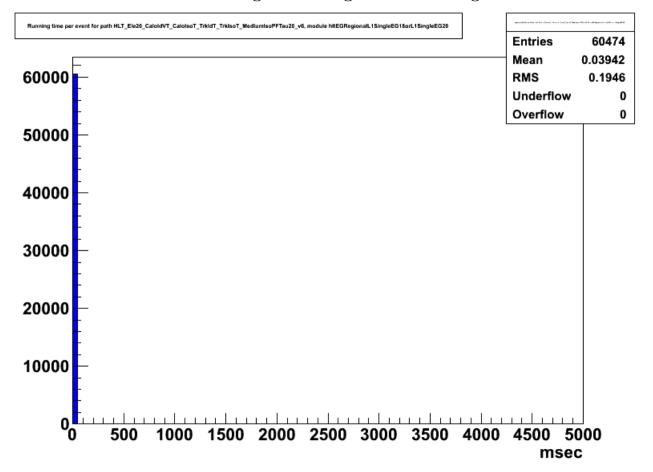
2.5.30 hltL1IsoRecoEcalCandidate



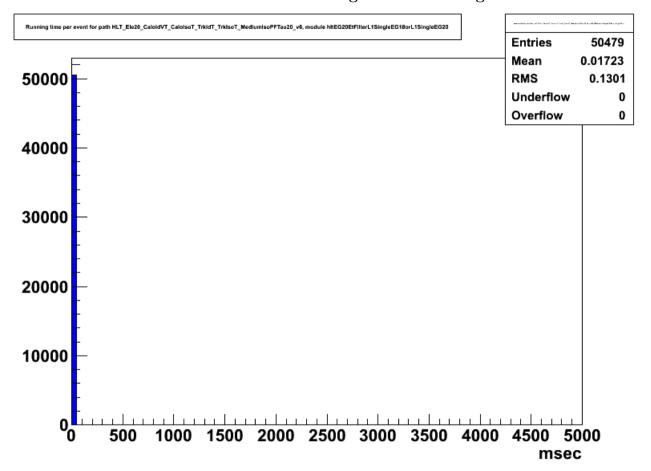
2.5.31 hltL1NonIsoRecoEcalCandidate



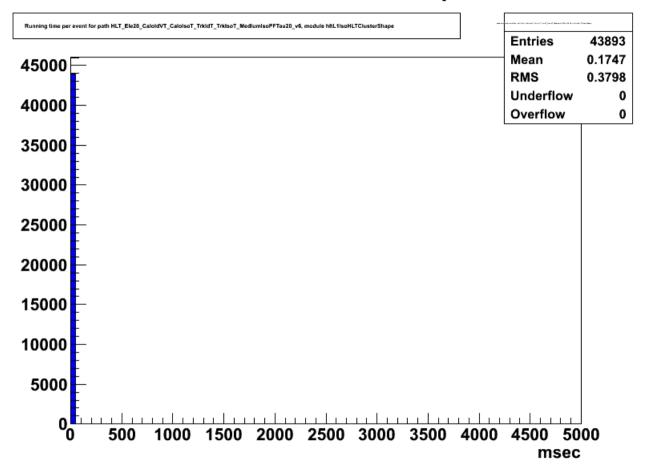
$2.5.32 \quad hlt EGRegional L1 Single EG18 or L1 Single EG20$



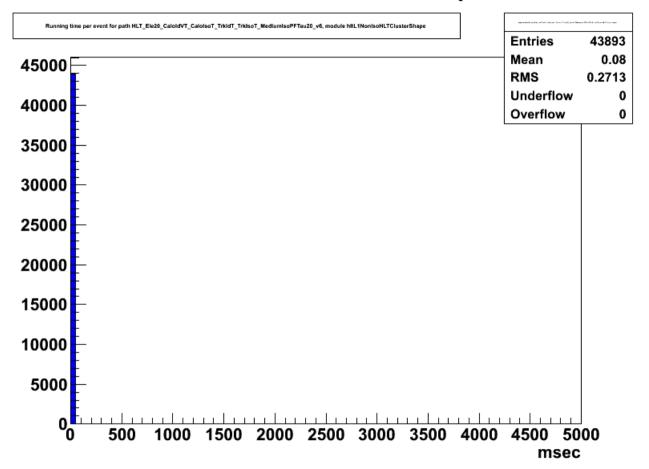
$2.5.33 \quad hlt EG20 EtFilter L1 Single EG18 or L1 Single EG20$



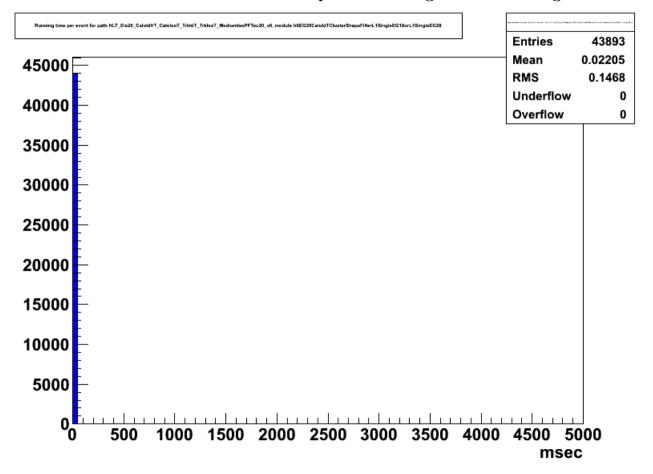
2.5.34 hltL1IsoHLTClusterShape



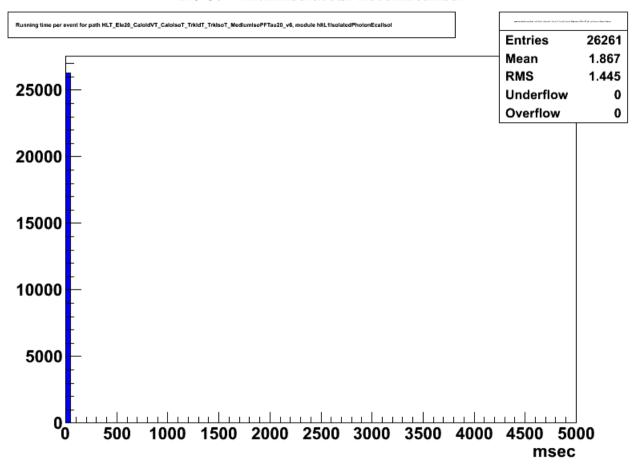
2.5.35 hltL1NonIsoHLTClusterShape



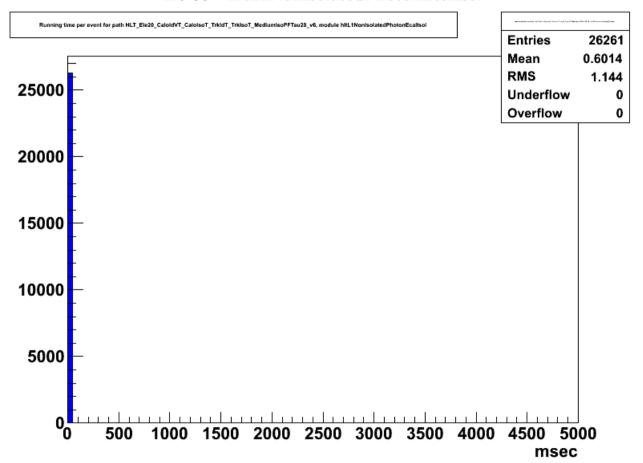
$2.5.36 \quad hlt EG20 Calo IdT Cluster Shape Filter L1 Single EG18 or L1 Single EG20$



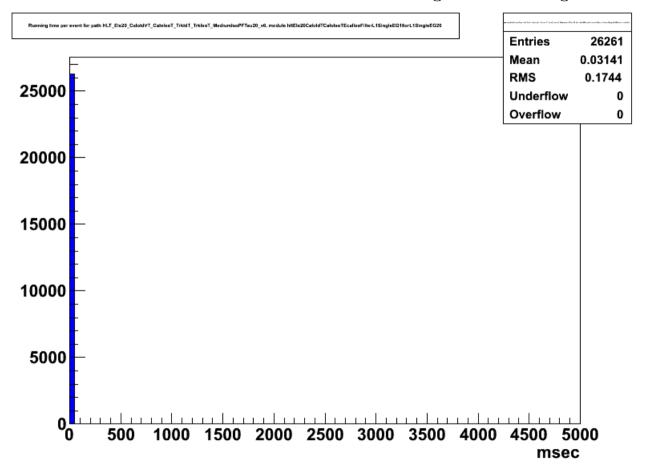
2.5.37 hltL1IsolatedPhotonEcalIsol



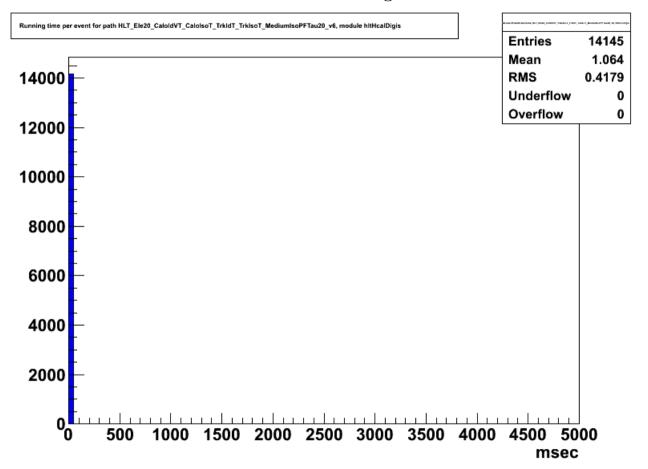
2.5.38 hltL1NonIsolatedPhotonEcalIsol



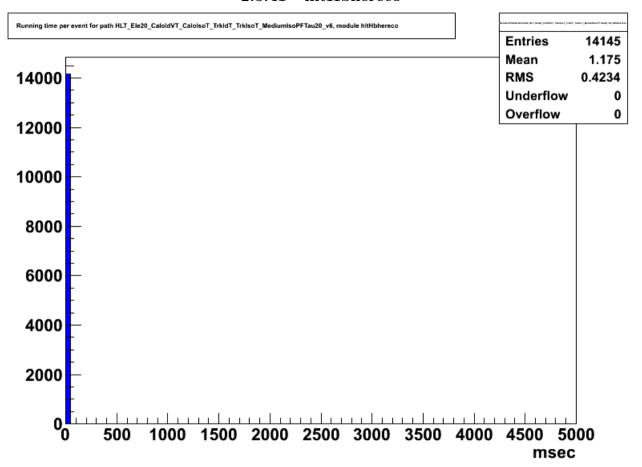
$2.5.39 \quad hlt Ele 20 Calo Id T Calo Iso T E call so Filter L1 Single EG18 or L1 Single EG20$



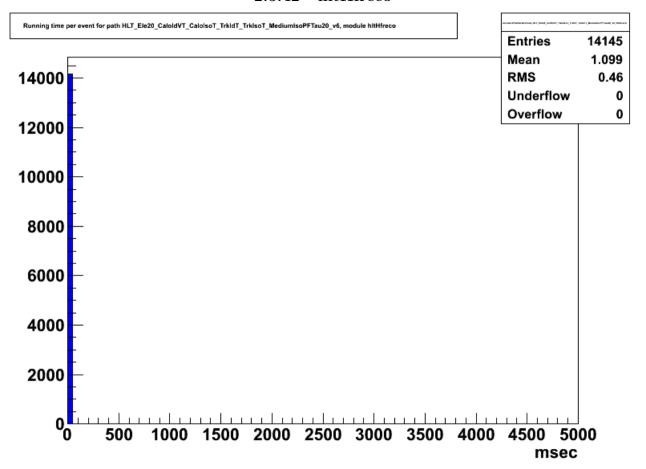
2.5.40 hltHcalDigis



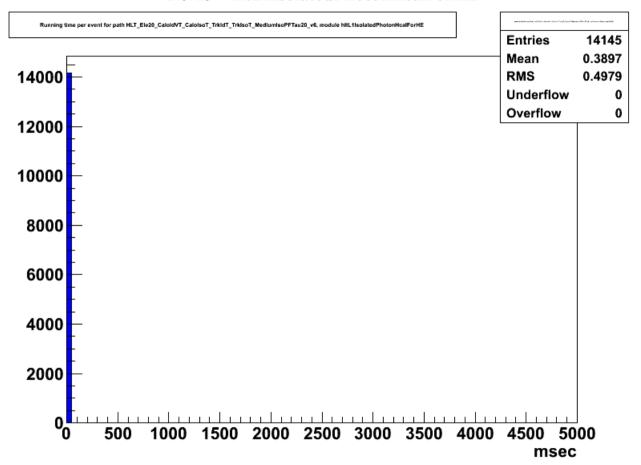
2.5.41 hltHbhereco



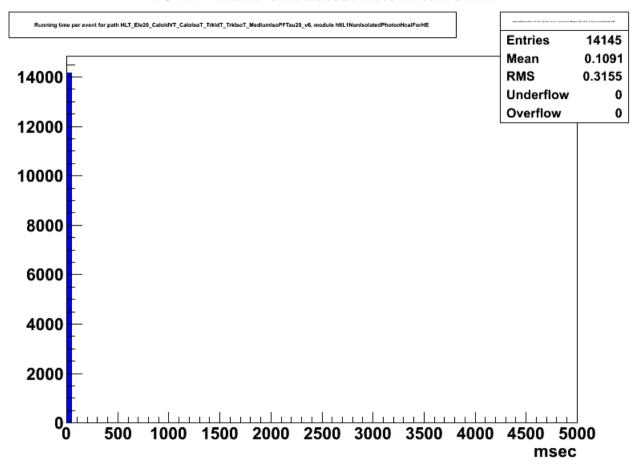
2.5.42 hltHfreco



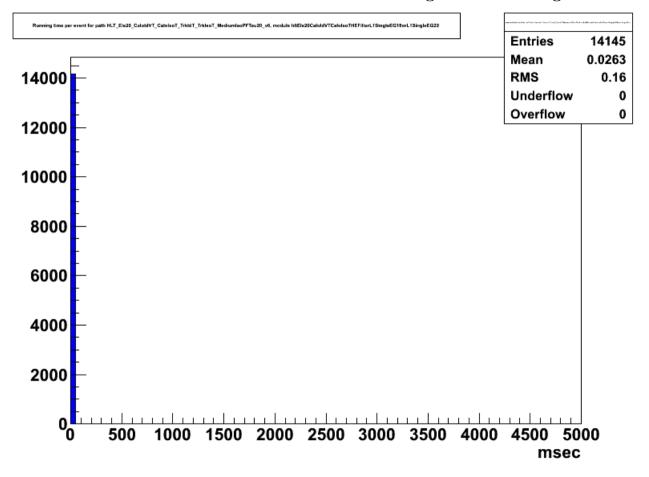
2.5.43 hltL1IsolatedPhotonHcalForHE



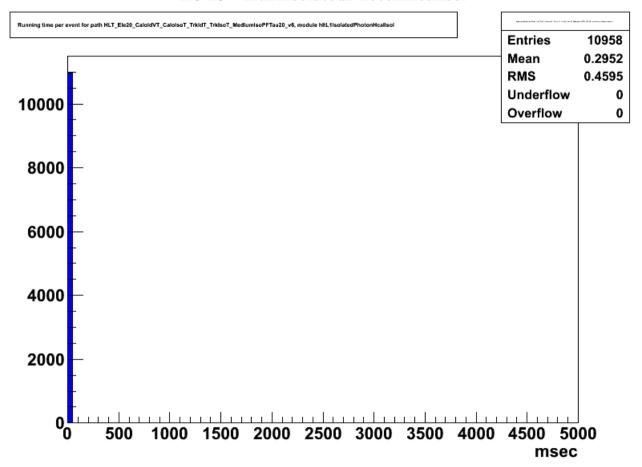
2.5.44 hltL1NonIsolatedPhotonHcalForHE



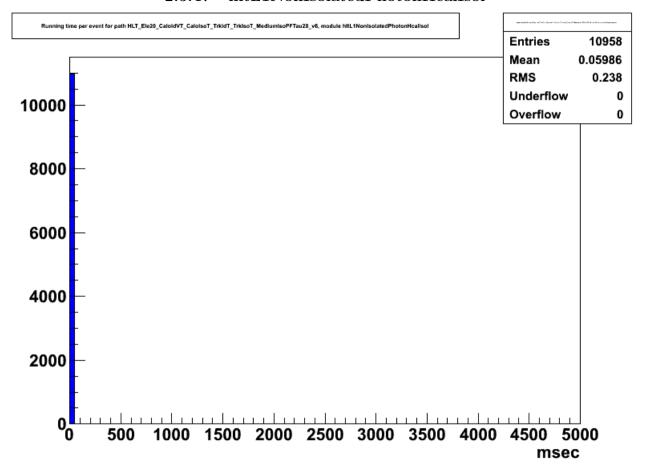
$2.5.45 \quad hlt Ele 20 Calo Id VT Calo Iso THE Filter L1 Single EG18 or L1 Single EG20$



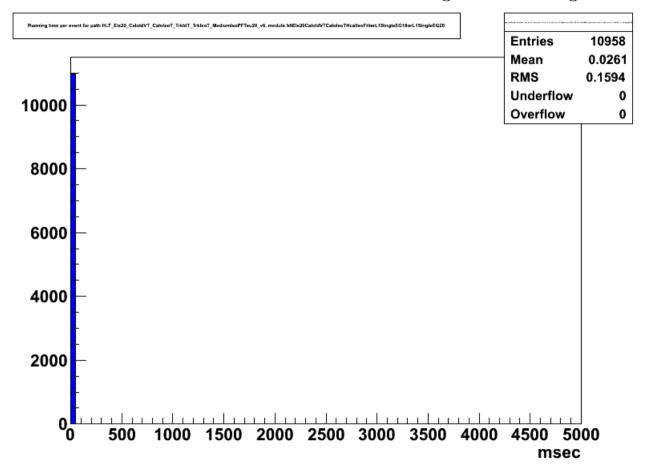
2.5.46 hltL1IsolatedPhotonHcalIsol



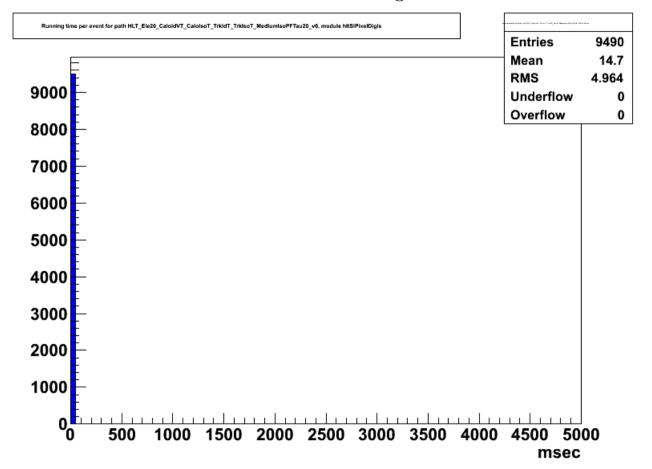
2.5.47 hltL1NonIsolatedPhotonHcalIsol



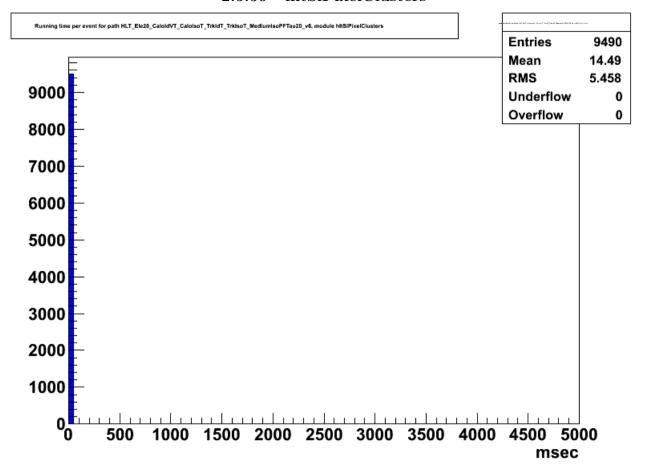
$2.5.48 \quad hlt Ele 20 Calo Id VT Calo Iso TH call So Filter L1 Single EG18 or L1 Single EG20$



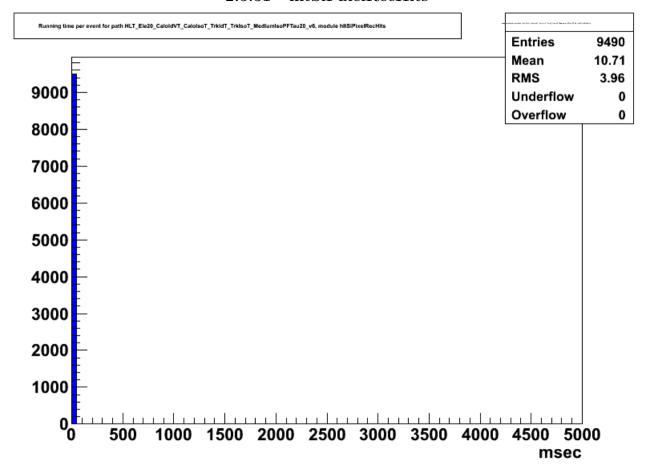
2.5.49 hltSiPixelDigis



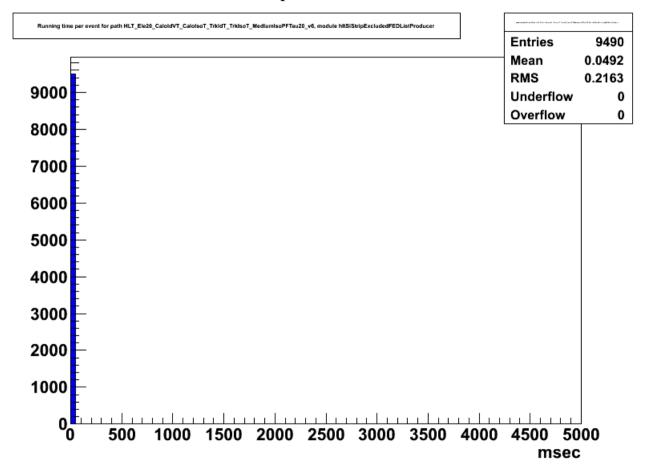
2.5.50 hltSiPixelClusters



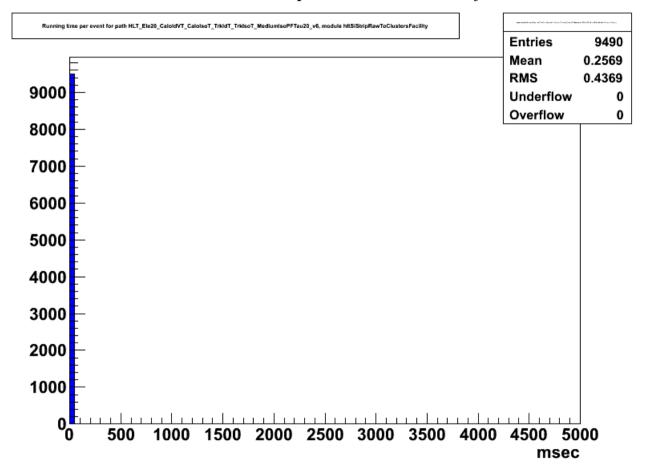
2.5.51 hltSiPixelRecHits



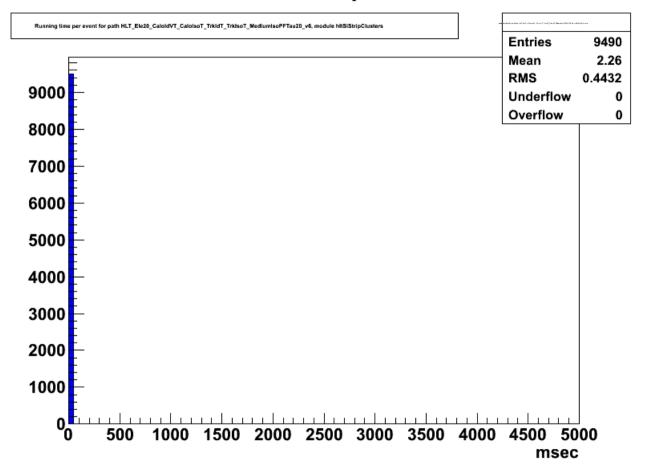
${\bf 2.5.52} \quad hlt SiStrip Excluded FED List Producer$



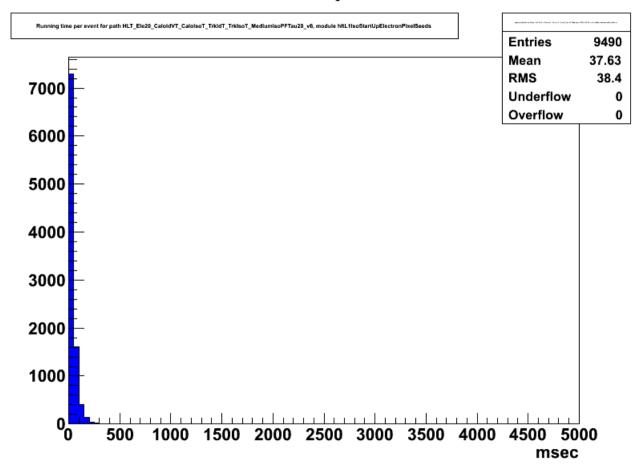
2.5.53 hltSiStripRawToClustersFacility



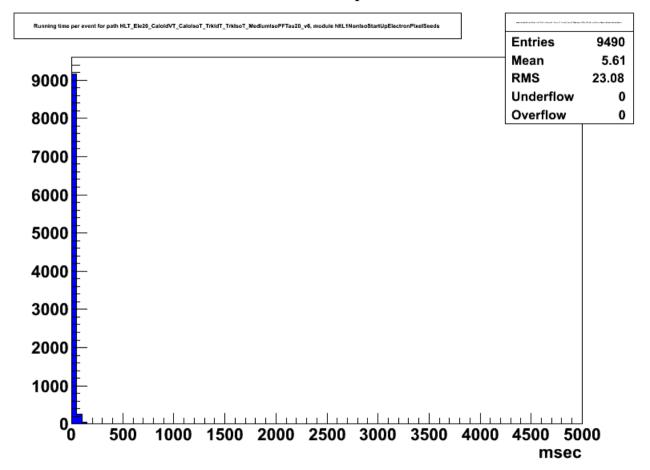
2.5.54 hltSiStripClusters



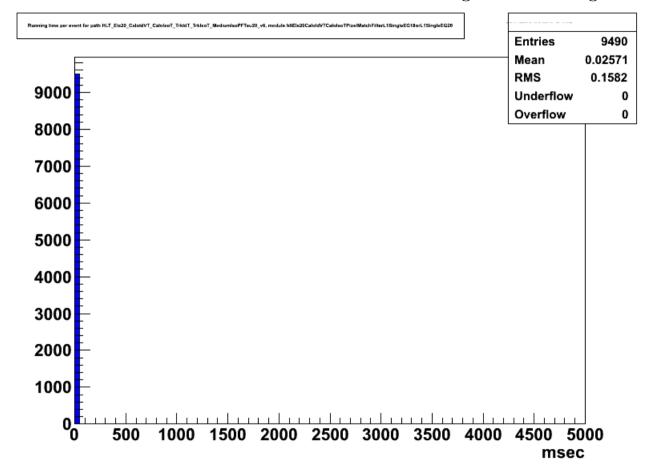
 ${\bf 2.5.55} \quad hlt L1 Iso Start Up Electron Pixel Seeds$



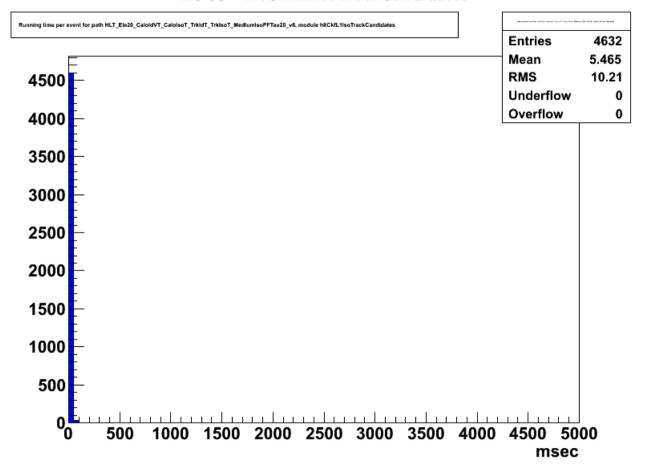
${\bf 2.5.56} \quad hlt L1 Non Iso Start Up Electron Pixel Seeds$



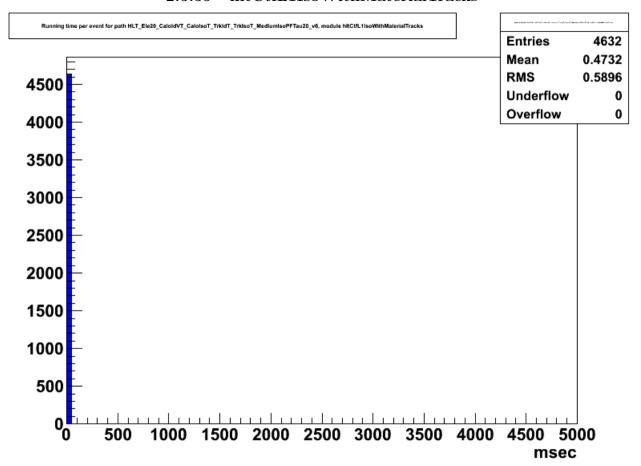
$2.5.57 \quad hlt Ele 20 Calo Id VT Calo Iso TPixel Match Filter L1 Single EG18 or L1 Single EG20$



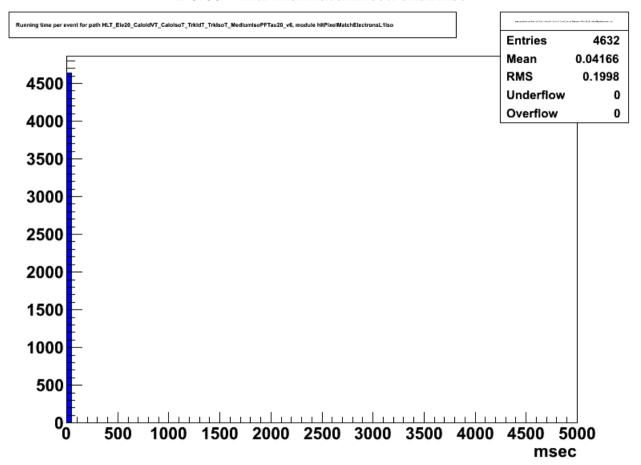
2.5.58 hltCkfL1IsoTrackCandidates



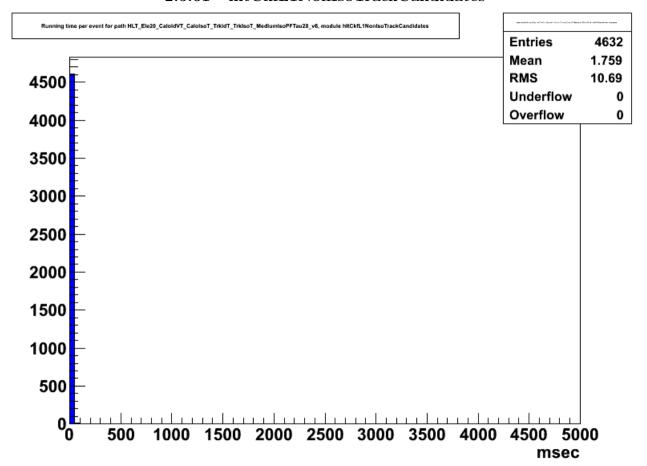
2.5.59 hltCtfL1IsoWithMaterialTracks



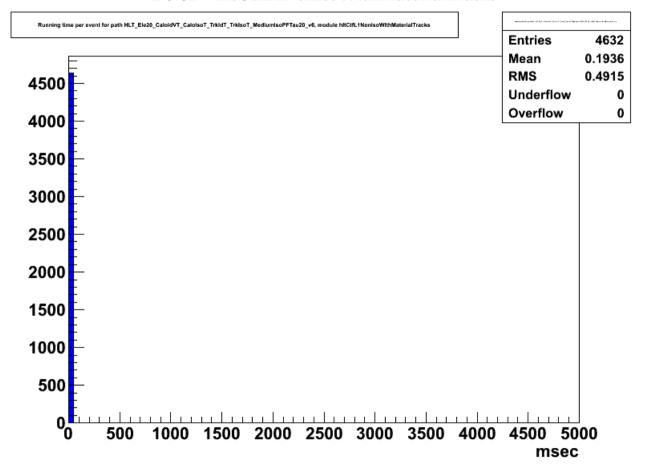
2.5.60 hltPixelMatchElectronsL1Iso



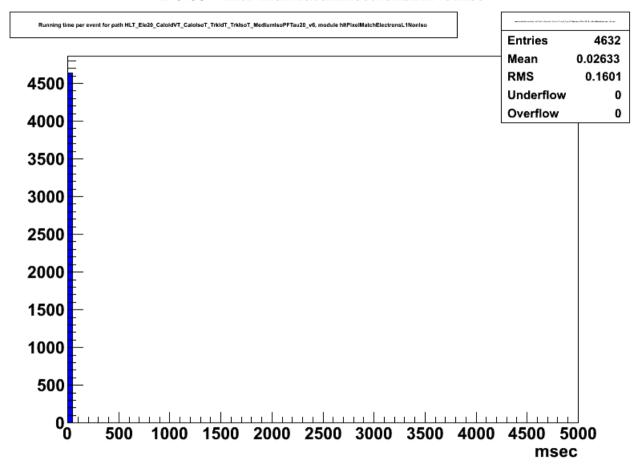
2.5.61 hltCkfL1NonIsoTrackCandidates



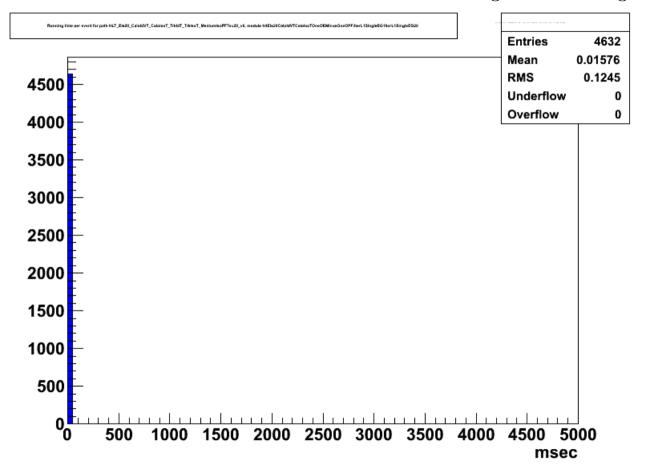
2.5.62 hltCtfL1NonIsoWithMaterialTracks



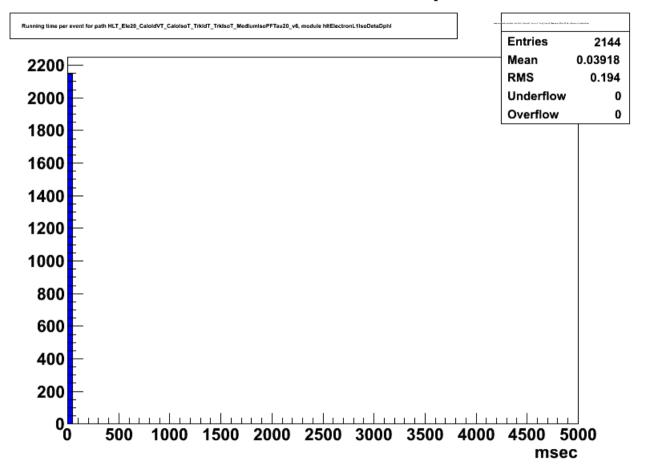
2.5.63 hltPixelMatchElectronsL1NonIso



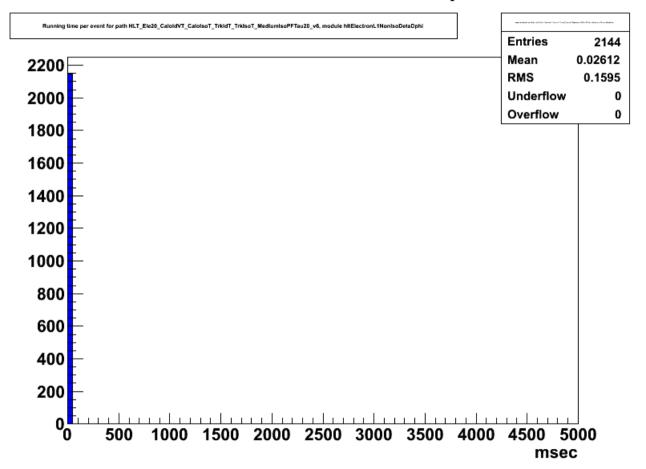
$2.5.64 \quad hlt Ele 20 Calo Id VT Calo Iso TOne OEMinus One OPF ilter L1 Single EG18 or L1 Single EG20$



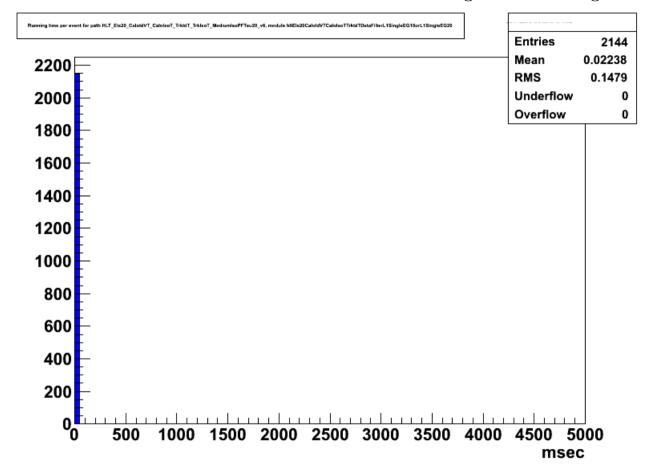
2.5.65 hltElectronL1IsoDetaDphi



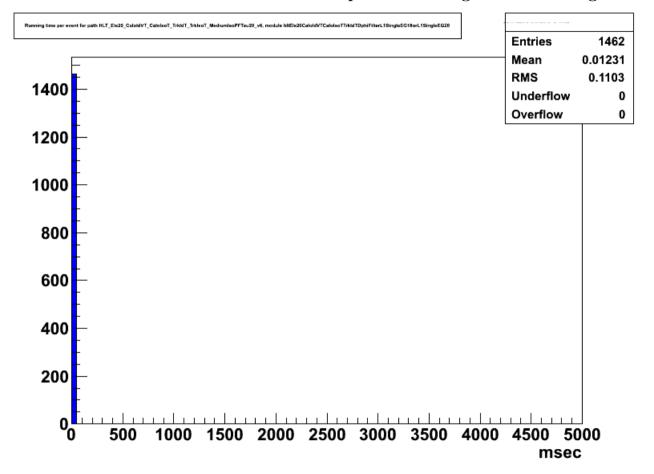
2.5.66 hltElectronL1NonIsoDetaDphi



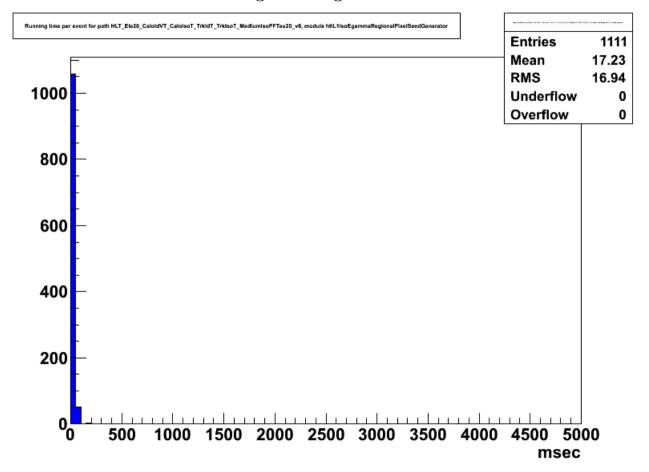
$2.5.67 \quad hlt Ele 20 Calo Id VT Calo Iso TTrk Id TDeta Filter L1 Single EG18 or L1 Single EG20$



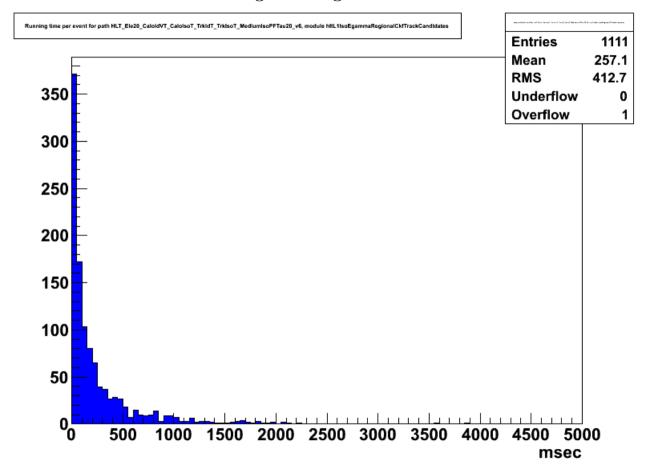
$2.5.68 \quad hlt Ele 20 Calo Id VT Calo Iso TTrk IdTD phi Filter L1 Single EG18 or L1 Single EG20$



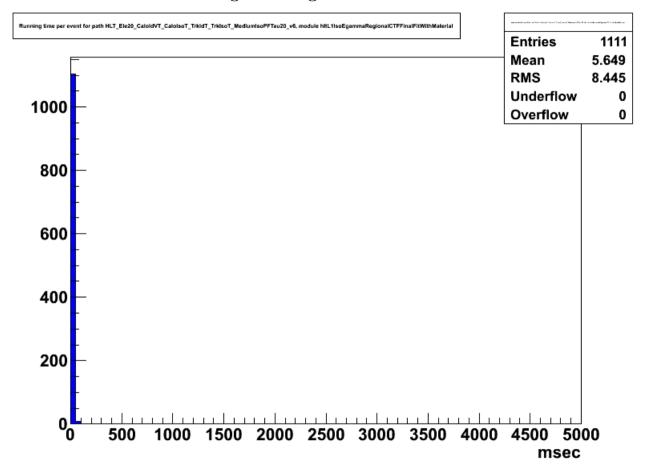
${\bf 2.5.69}\quad hlt L1 Iso Egamma Regional Pixel Seed Generator$



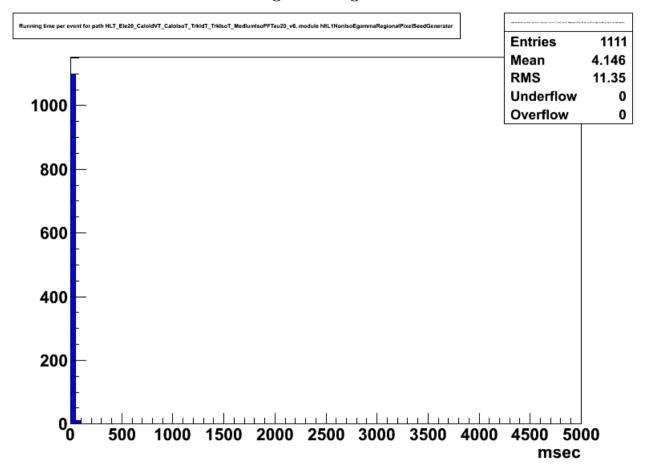
 $2.5.70 \quad hlt L1 Iso Egamma Regional Ckf Track Candidates$



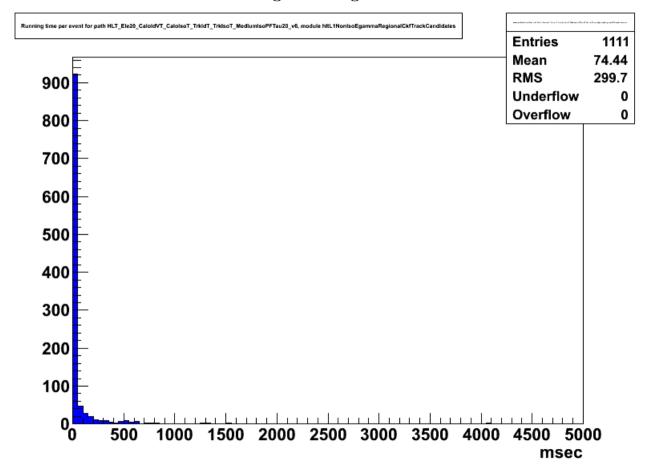
2.5.71 hltL1IsoEgammaRegionalCTFFinalFitWithMaterial



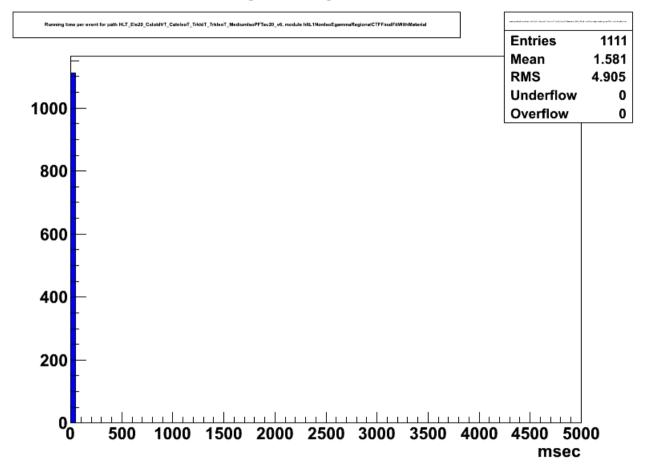
2.5.72 hltL1NonIsoEgammaRegionalPixelSeedGenerator



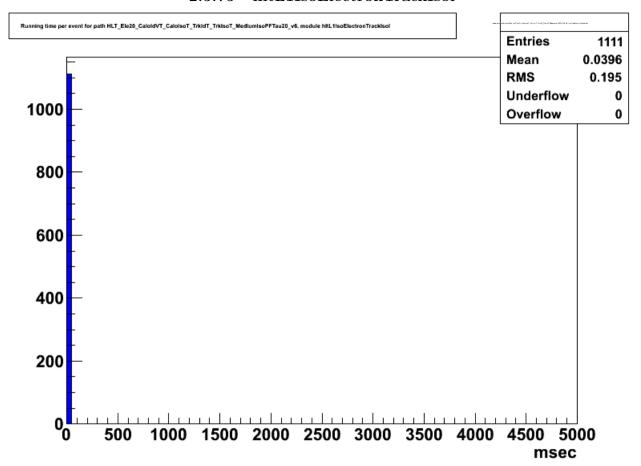
$2.5.73 \quad hlt L1 Non Iso Egamma Regional Ckf Track Candidates$



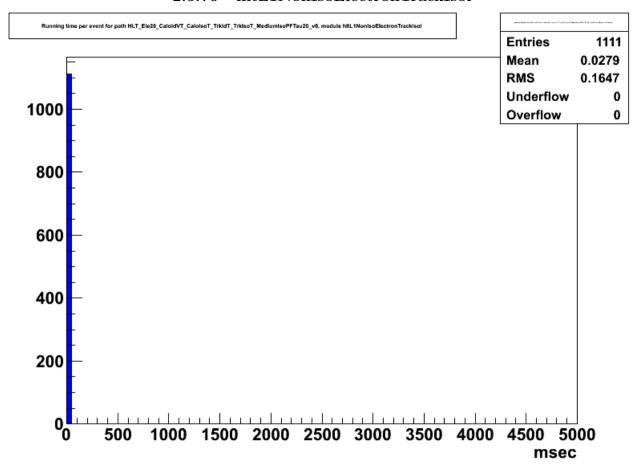
2.5.74 hltL1NonIsoEgammaRegionalCTFFinalFitWithMaterial



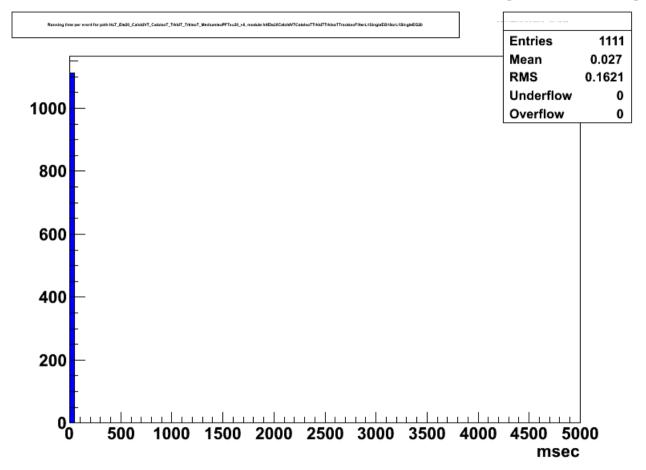
2.5.75 hltL1IsoElectronTrackIsol



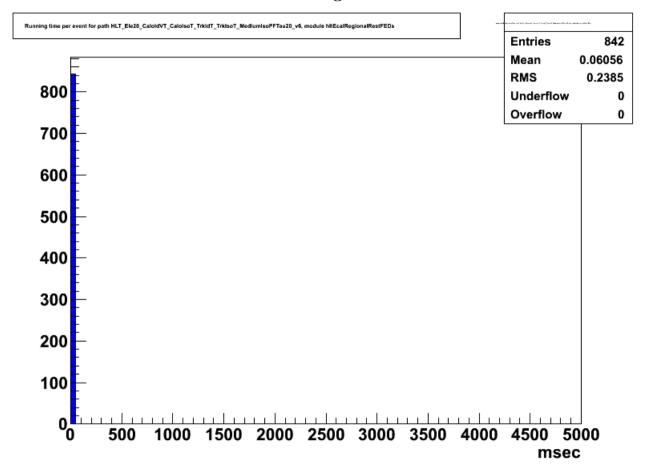
2.5.76 hltL1NonIsoElectronTrackIsol



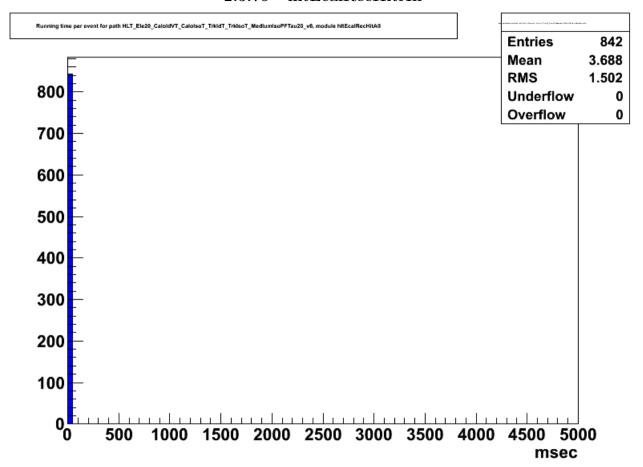
$2.5.77 \quad hlt Ele 20 Calo Id VT Calo Iso TTrk Id TTrk Iso TTrack Iso Filter L1 Single EG18 or L1 Single EG20$



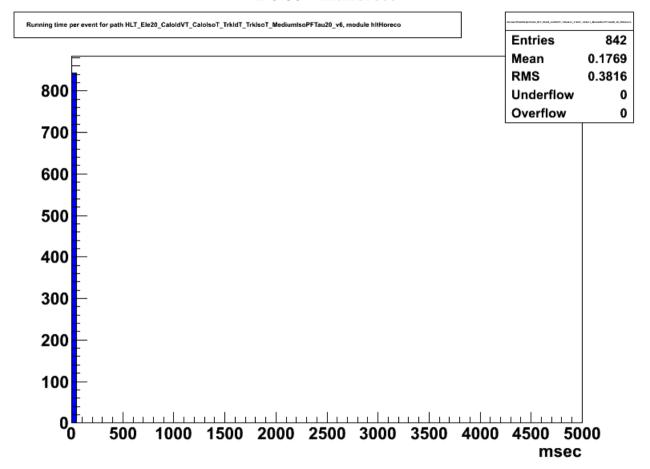
 $2.5.78 \quad hlt Ecal Regional Rest FEDs$



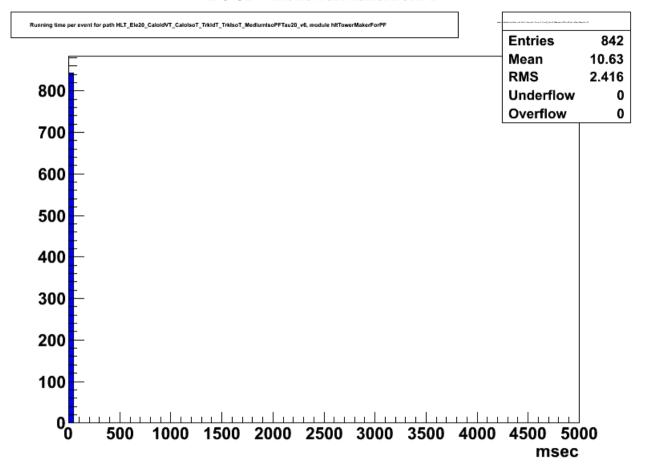
2.5.79 hltEcalRecHitAll



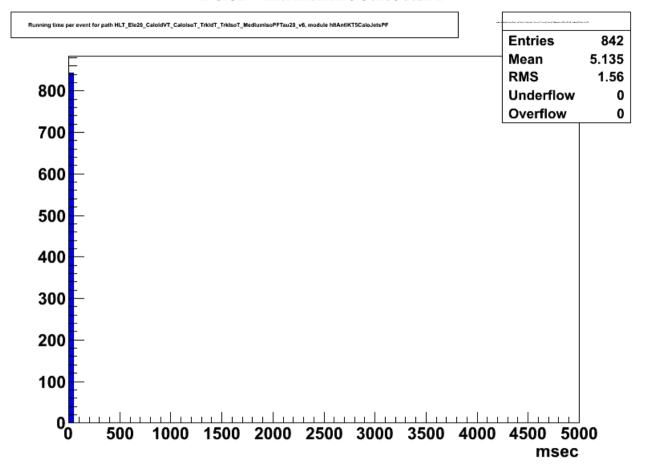
2.5.80 hltHoreco



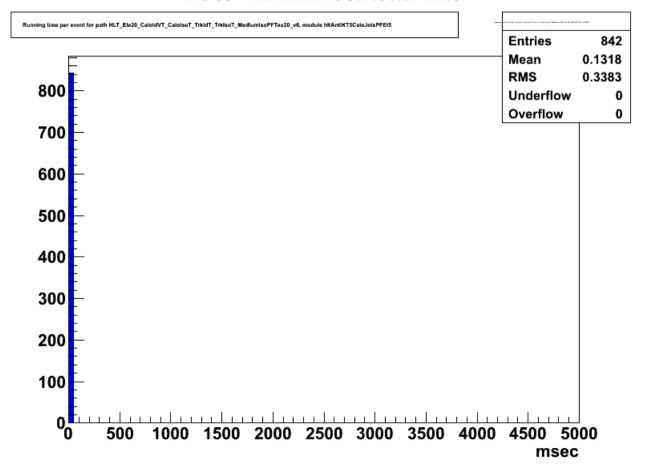
2.5.81 hltTowerMakerForPF



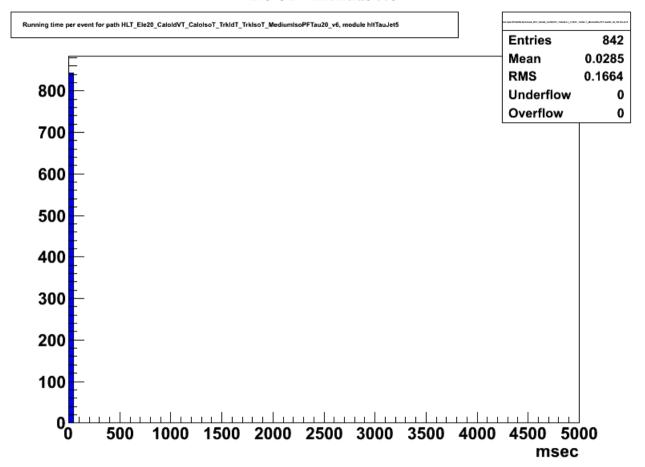
2.5.82 hltAntiKT5CaloJetsPF



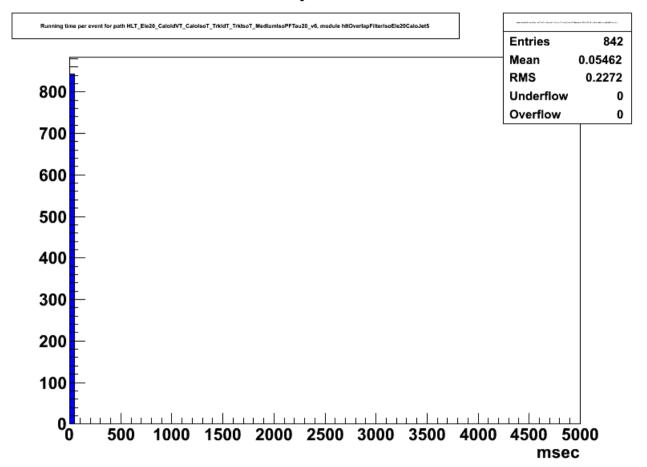
2.5.83 hltAntiKT5CaloJetsPFEt5



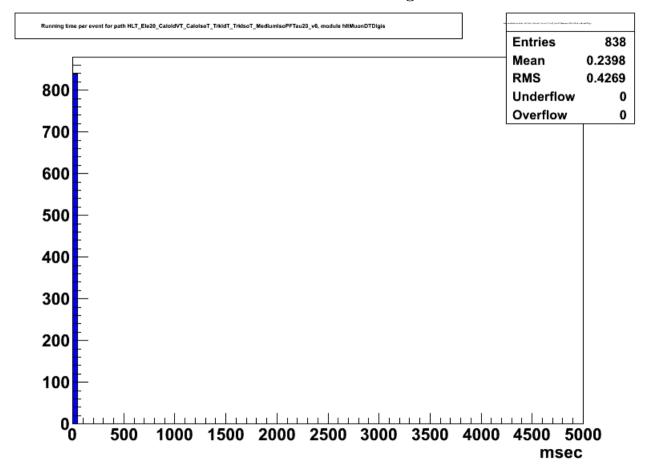
2.5.84 hltTauJet5



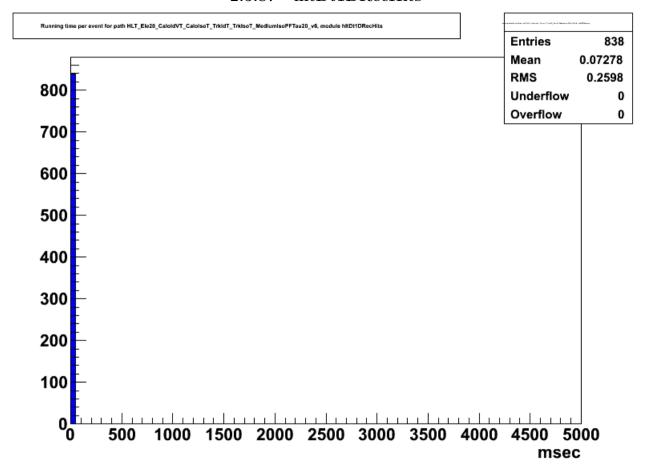
 $2.5.85 \quad hlt Overlap Filter Iso Ele 20 Calo Jet 5$



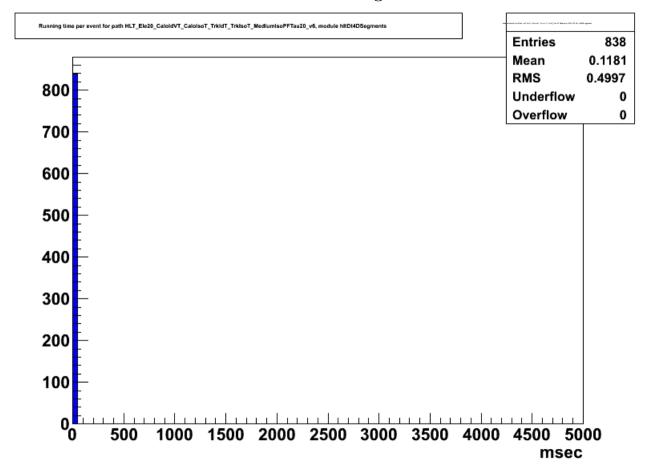
2.5.86 hltMuonDTDigis



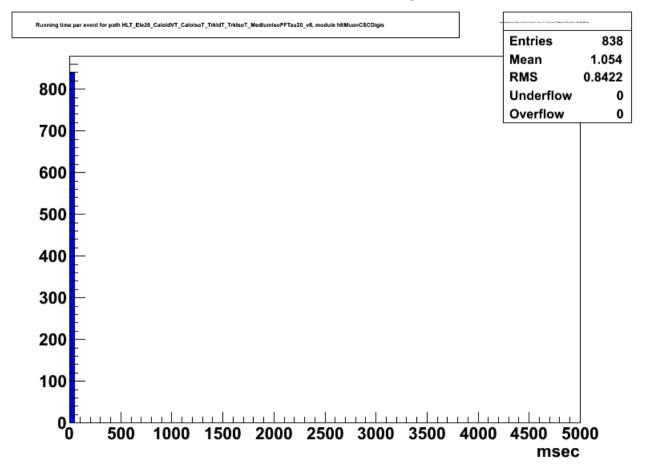
2.5.87 hltDt1DRecHits



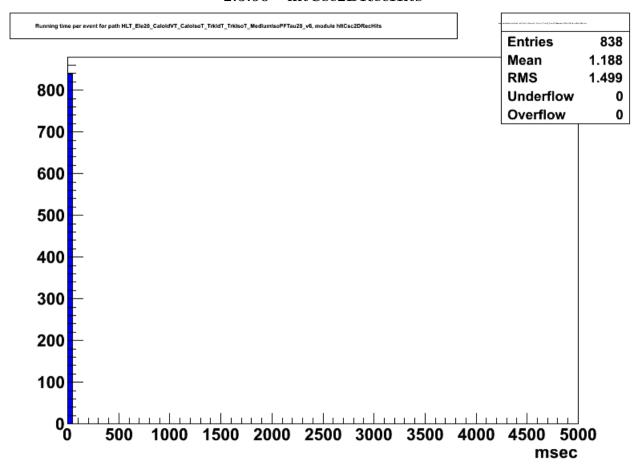
2.5.88 hltDt4DSegments



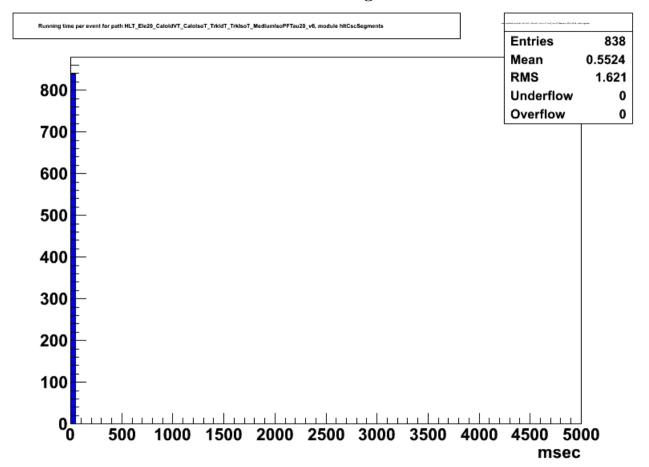
2.5.89 hltMuonCSCDigis



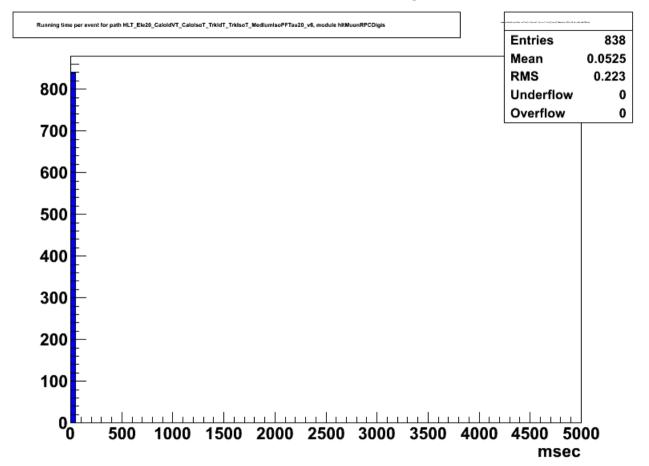
2.5.90 hltCsc2DRecHits



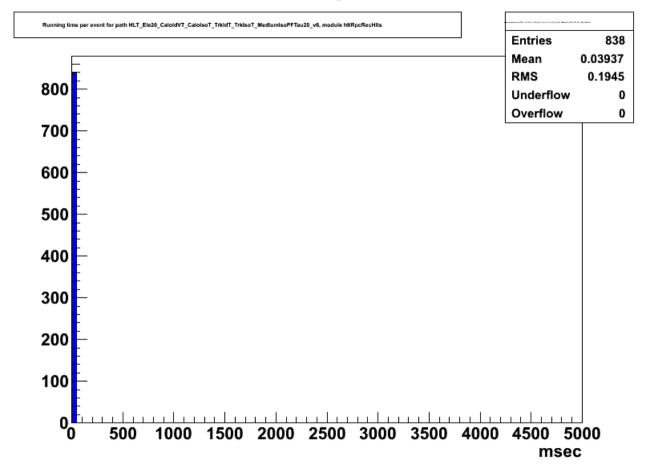
2.5.91 hltCscSegments



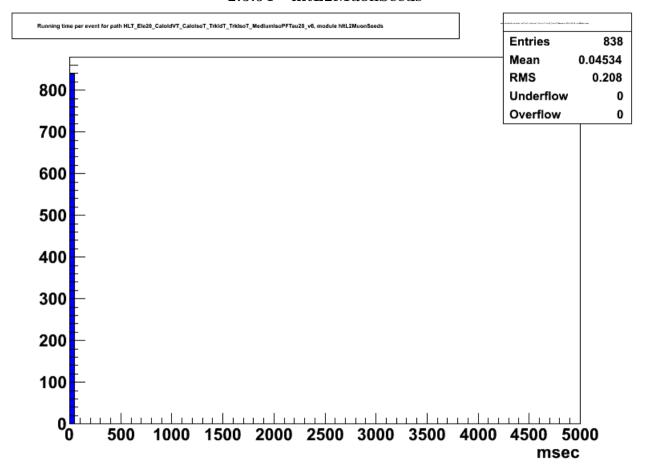
2.5.92 hltMuonRPCDigis



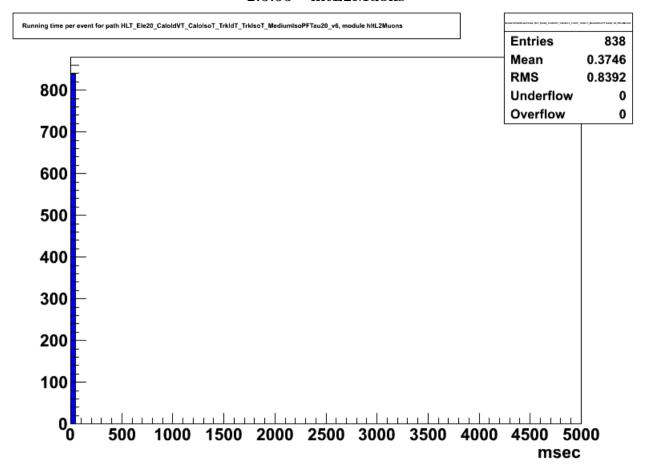
2.5.93 hltRpcRecHits



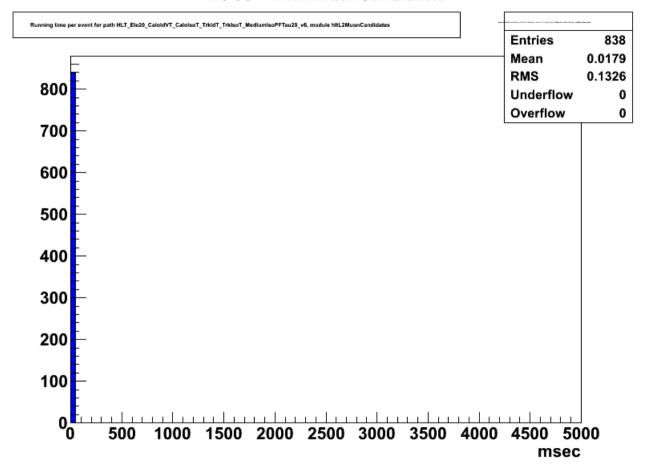
2.5.94 hltL2MuonSeeds



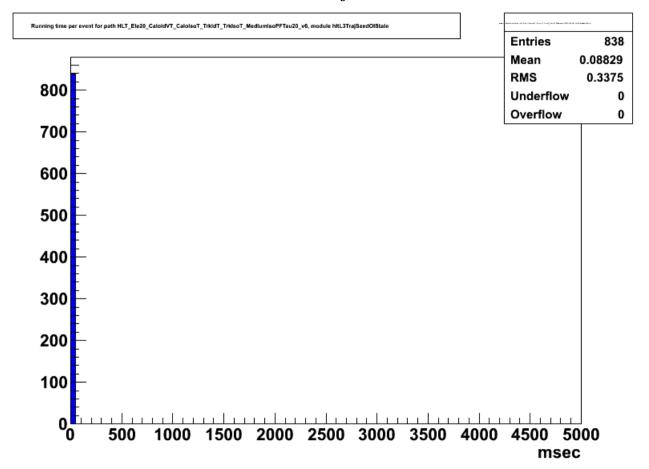
2.5.95 hltL2Muons



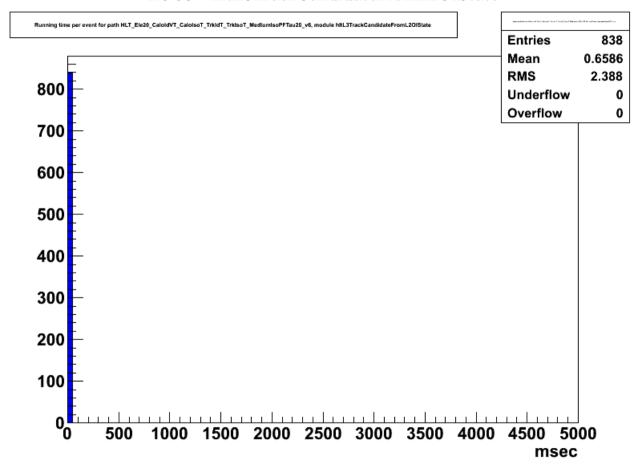
2.5.96 hltL2MuonCandidates



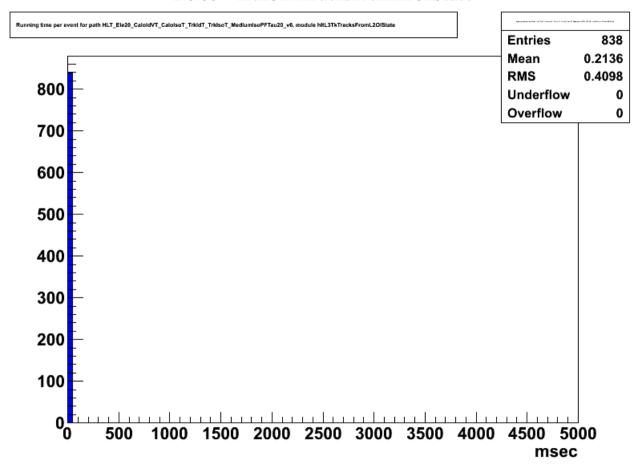
2.5.97 hltL3TrajSeedOIState



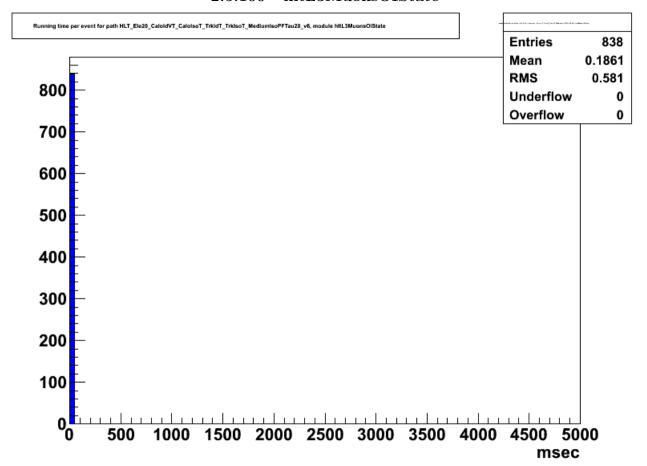
2.5.98 hltL3TrackCandidateFromL2OIState



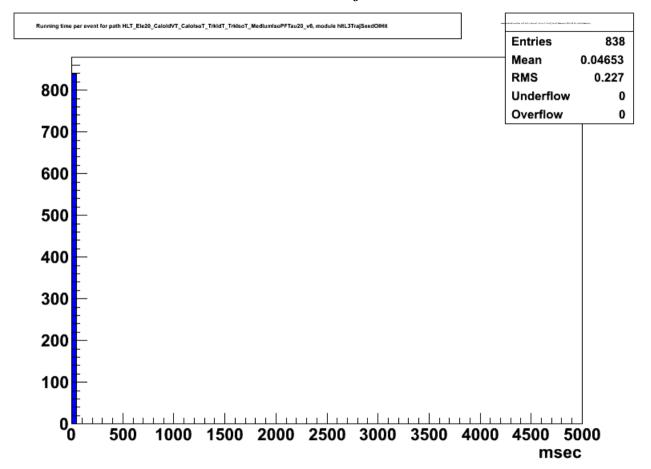
2.5.99 hltL3TkTracksFromL2OIState



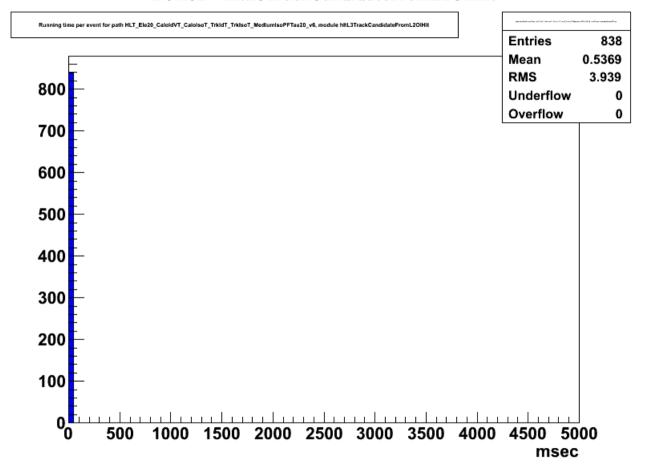
2.5.100 hltL3MuonsOIState



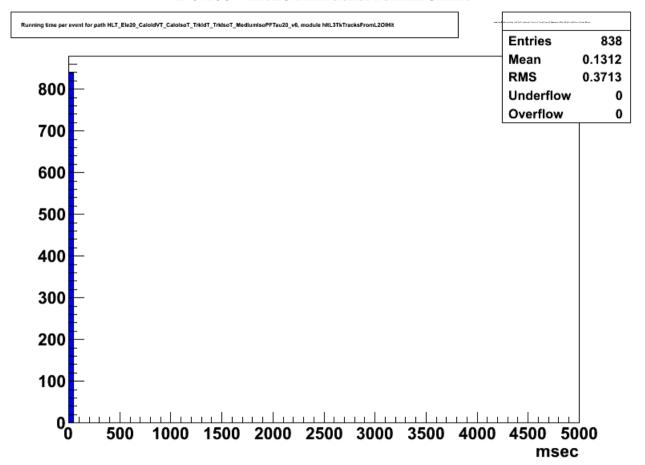
2.5.101 hltL3TrajSeedOIHit



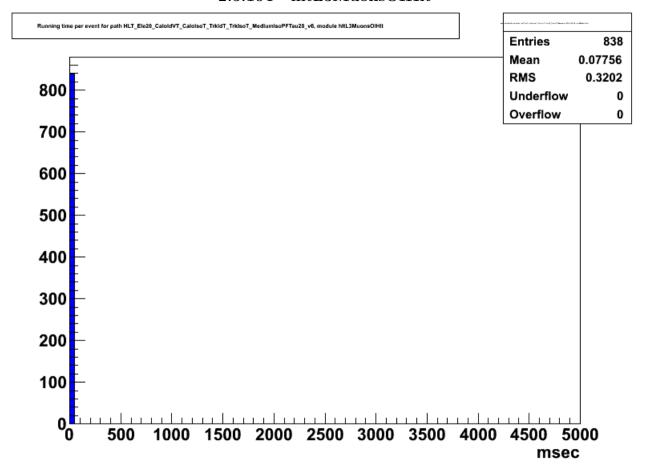
2.5.102 hltL3TrackCandidateFromL2OIHit



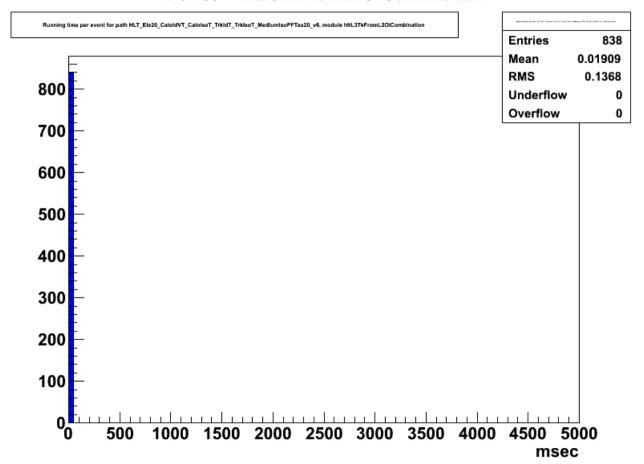
2.5.103 hltL3TkTracksFromL2OIHit



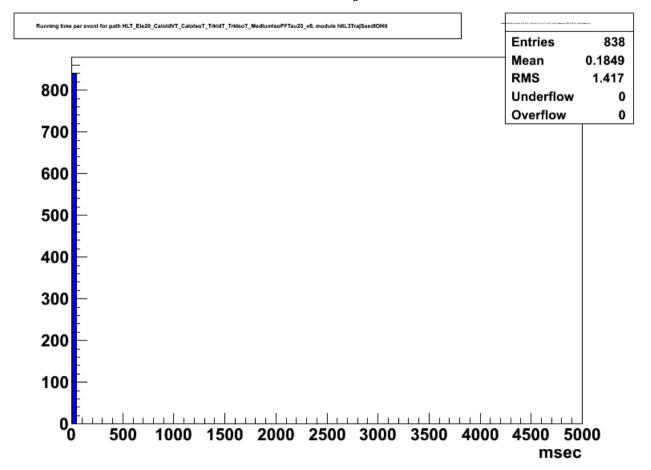
2.5.104 hltL3MuonsOIHit



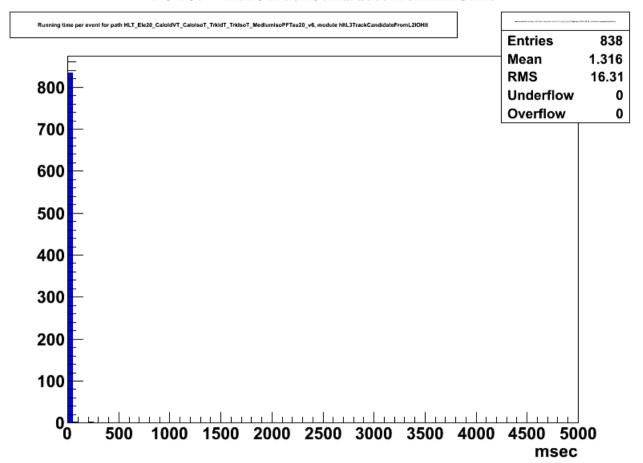
2.5.105 hltL3TkFromL2OICombination



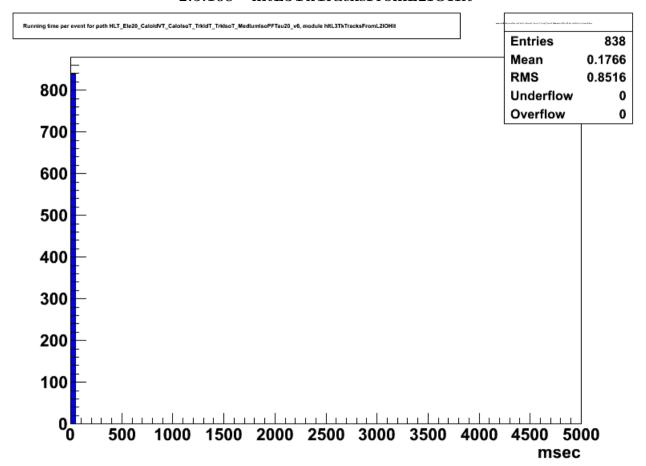
2.5.106 hltL3TrajSeedIOHit



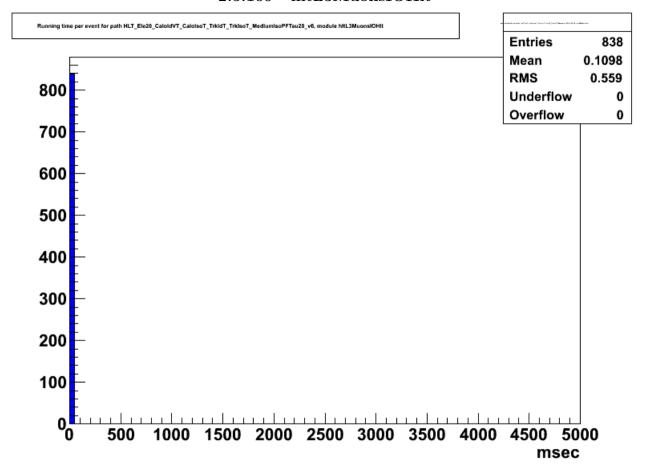
2.5.107 hltL3TrackCandidateFromL2IOHit



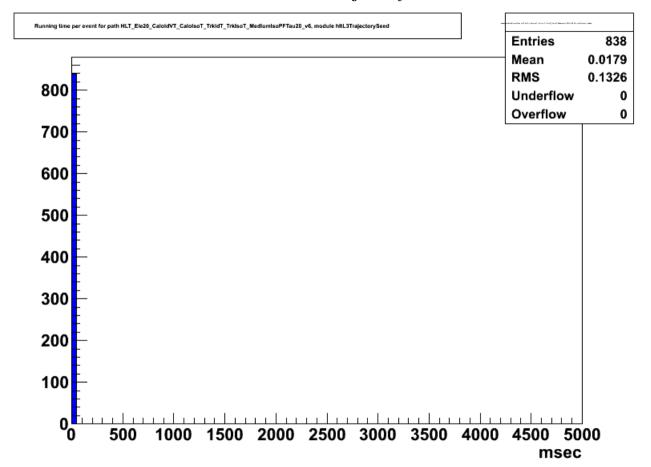
2.5.108 hltL3TkTracksFromL2IOHit



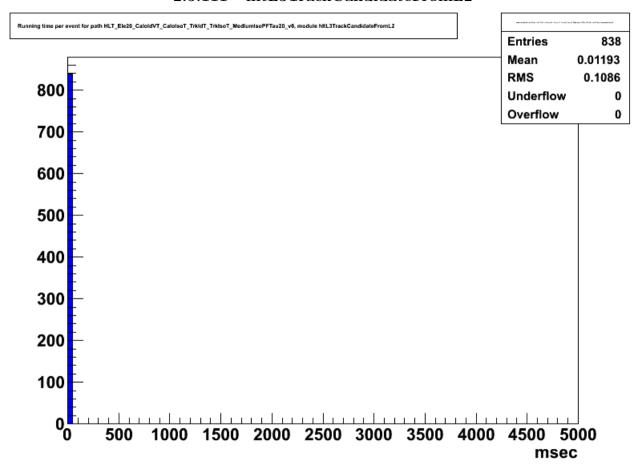
2.5.109 hltL3MuonsIOHit



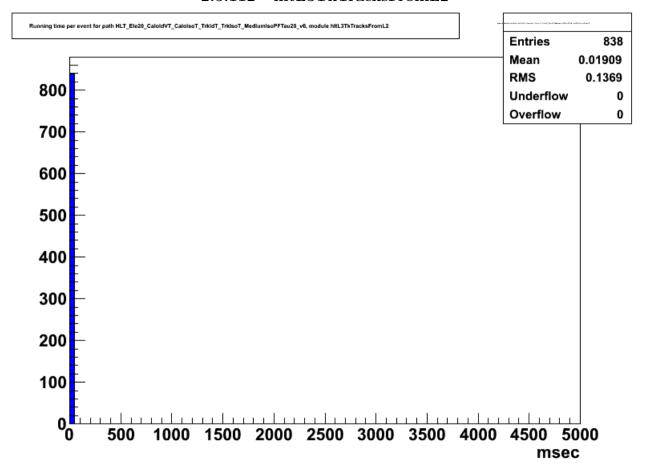
2.5.110 hltL3TrajectorySeed



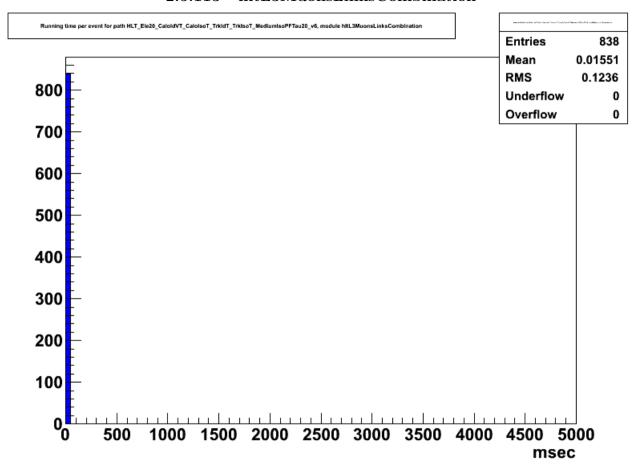
2.5.111 hltL3TrackCandidateFromL2



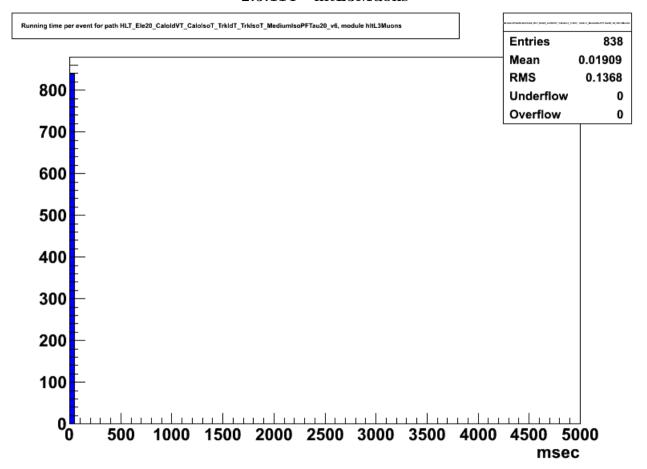
2.5.112 hltL3TkTracksFromL2



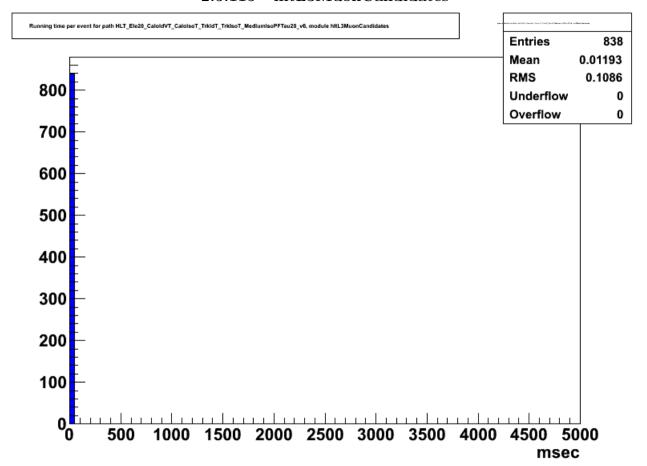
2.5.113 hltL3MuonsLinksCombination



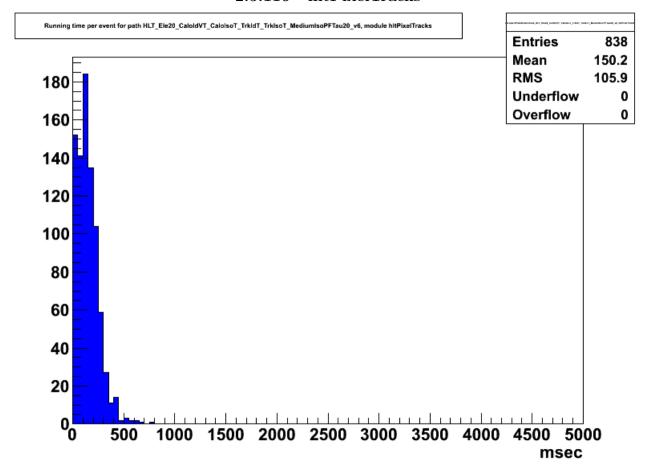
2.5.114 hltL3Muons



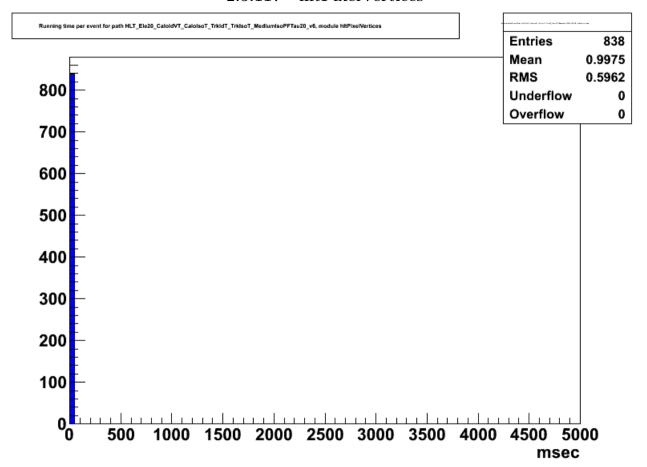
2.5.115 hltL3MuonCandidates



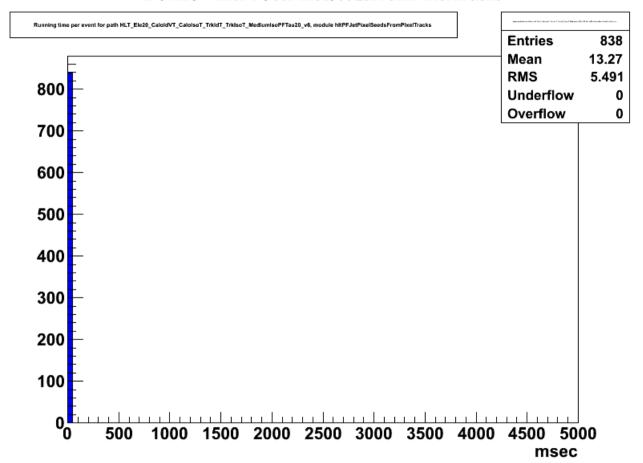
2.5.116 hltPixelTracks



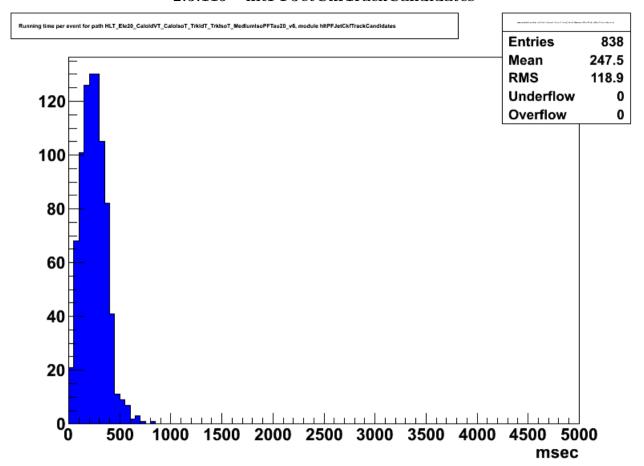
2.5.117 hltPixelVertices



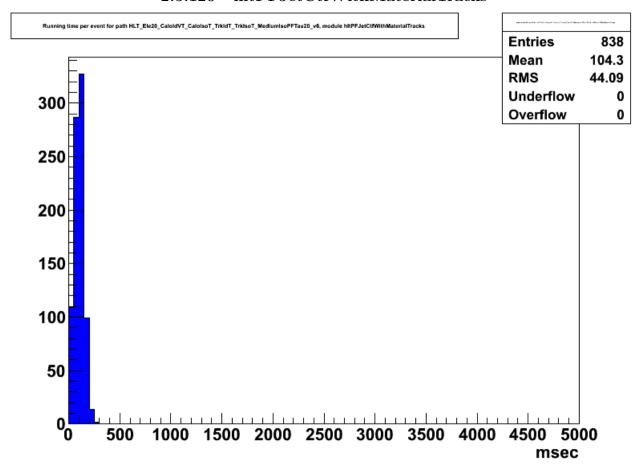
2.5.118 hltPFJetPixelSeedsFromPixelTracks



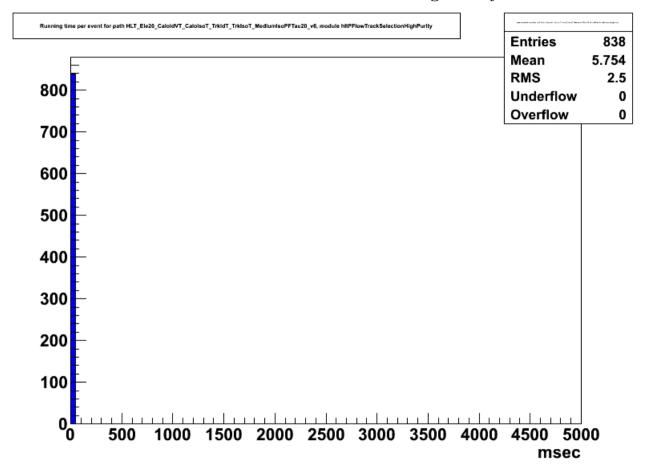
2.5.119 hltPFJetCkfTrackCandidates



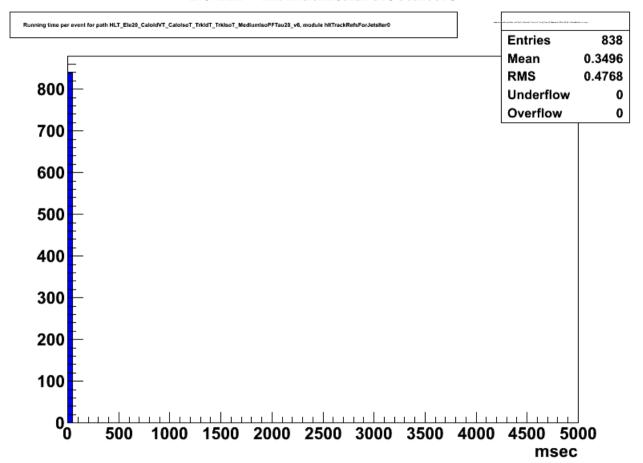
2.5.120 hltPFJetCtfWithMaterialTracks



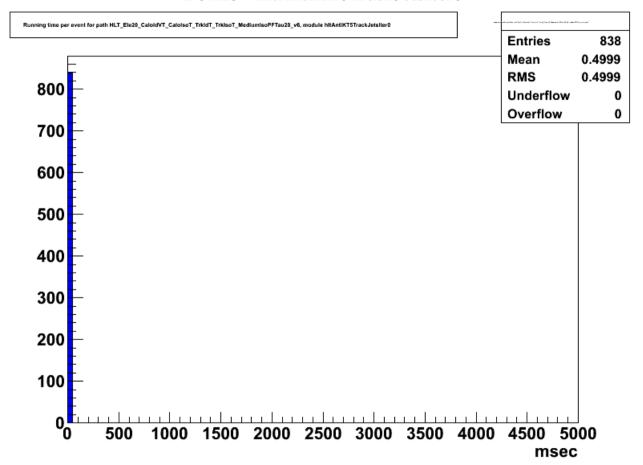
2.5.121 hltPFlowTrackSelectionHighPurity



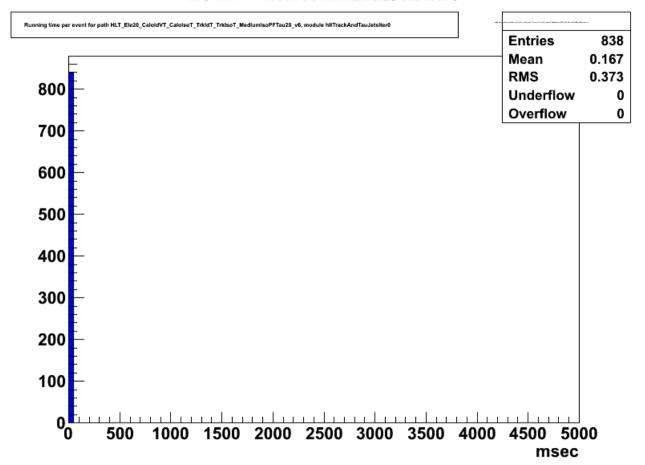
2.5.122 hltTrackRefsForJetsIter0



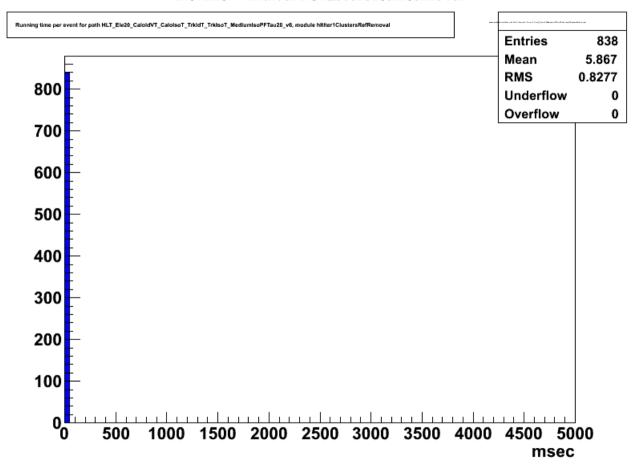
2.5.123 hltAntiKT5TrackJetsIter0



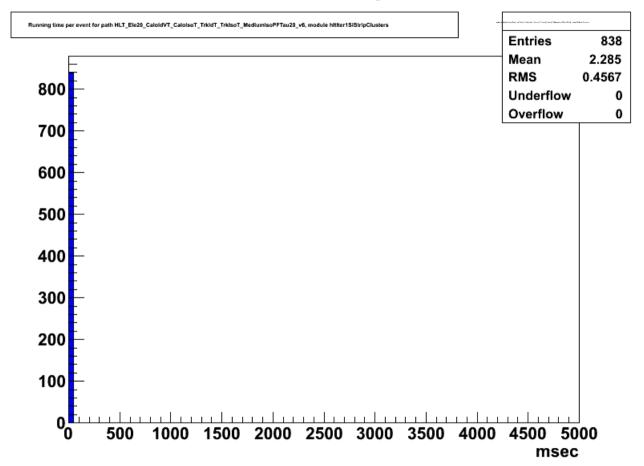
2.5.124 hltTrackAndTauJetsIter0



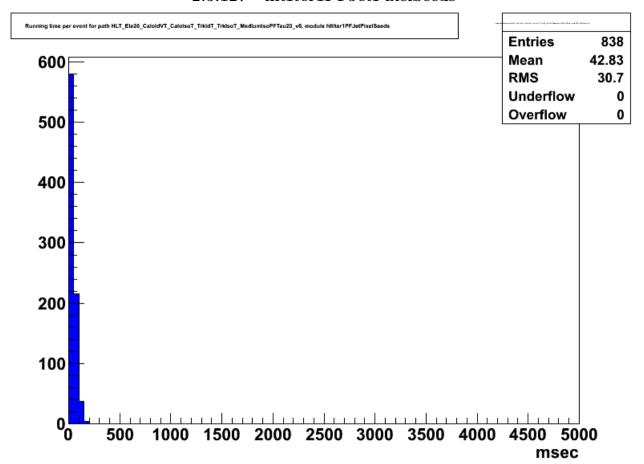
2.5.125 hltIter1ClustersRefRemoval



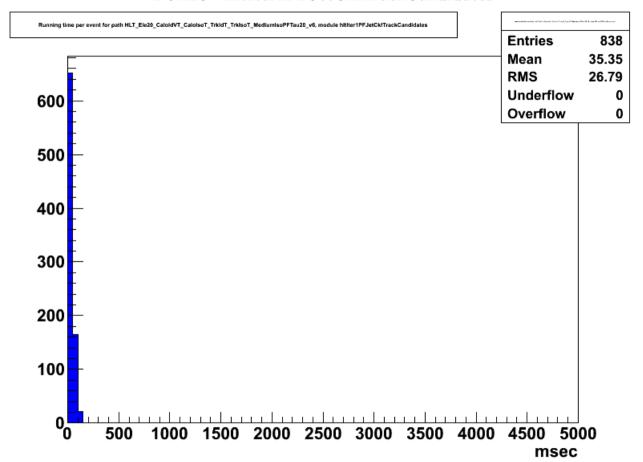
2.5.126 hltIter1SiStripClusters



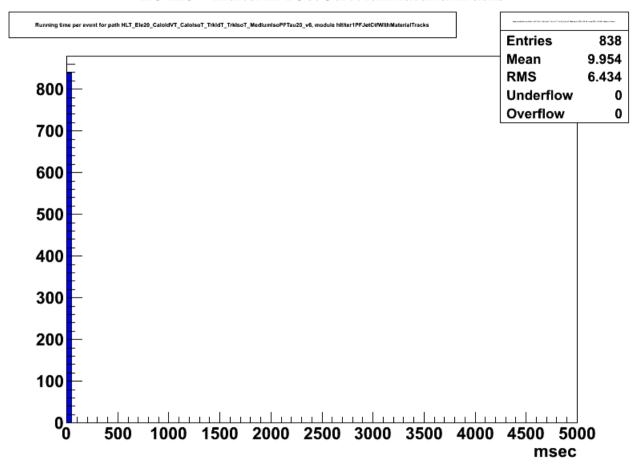
2.5.127 hltIter1PFJetPixelSeeds



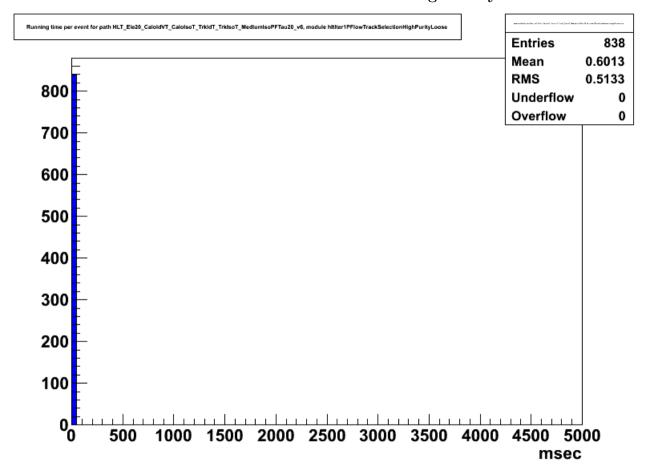
${\bf 2.5.128} \quad hlt Iter 1PF Jet Ckf Track Candidates$



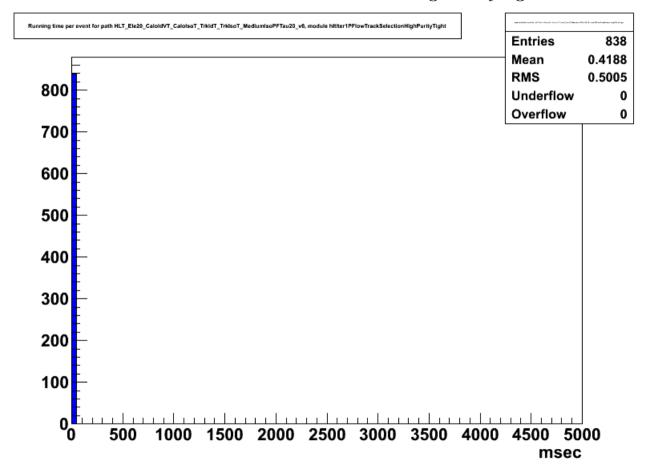
2.5.129 hltIter1PFJetCtfWithMaterialTracks



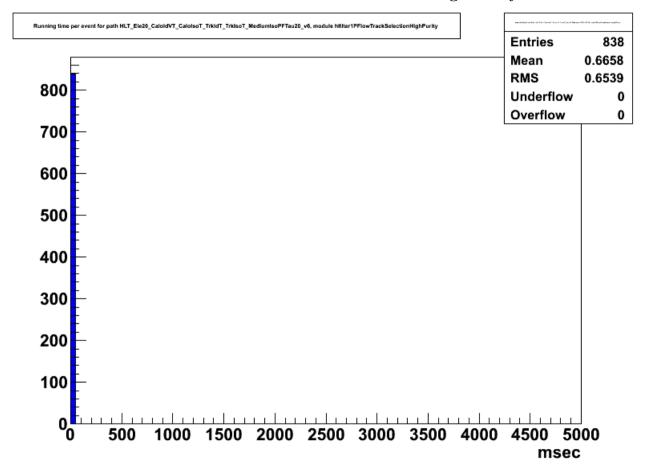
${\bf 2.5.130} \quad hlt Iter 1PF low Track Selection High Purity Loose$



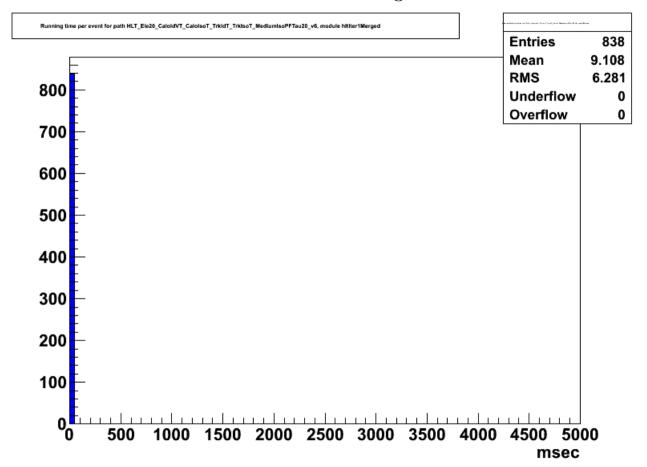
${\bf 2.5.131} \quad hlt Iter 1 PF low Track Selection High Purity Tight$



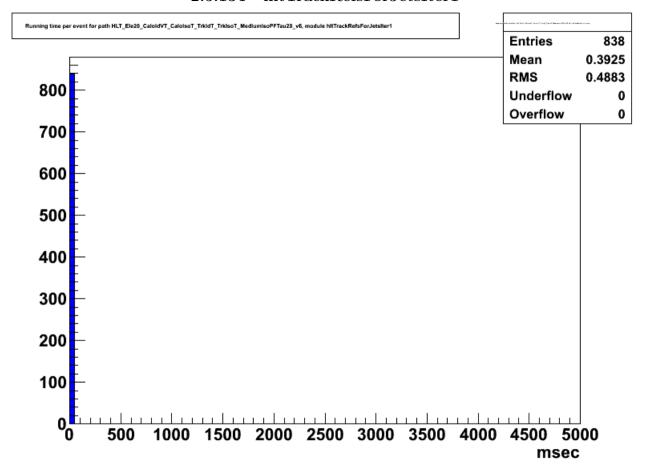
${\bf 2.5.132} \quad hlt Iter 1PF low Track Selection High Purity$



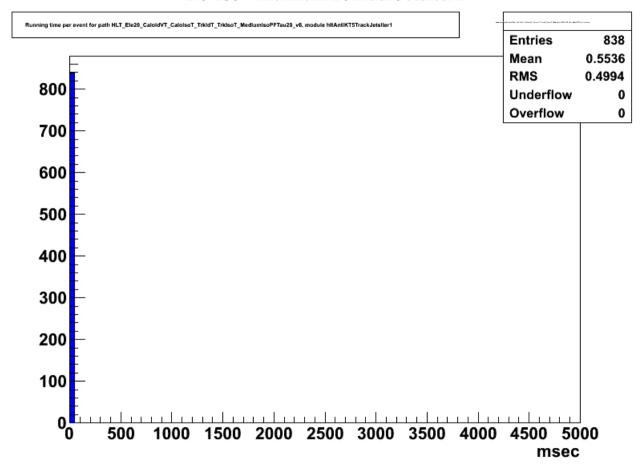
2.5.133 hltIter1Merged



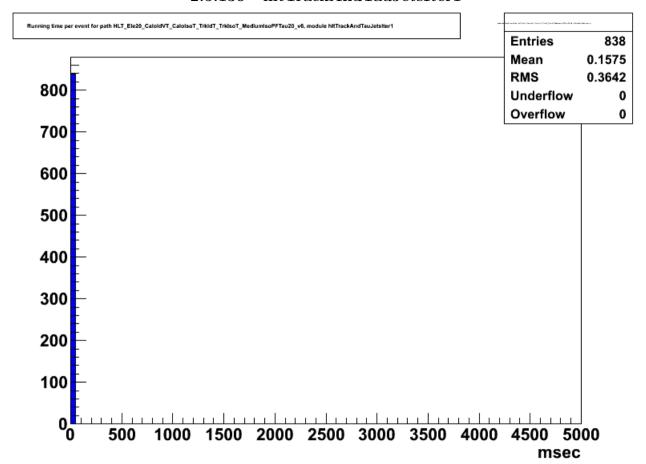
2.5.134 hltTrackRefsForJetsIter1



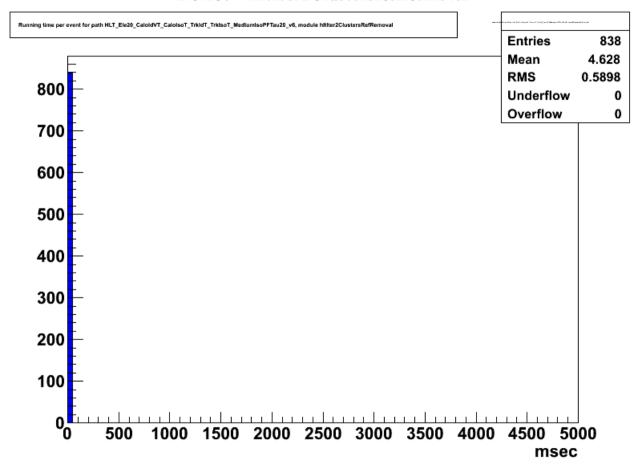
2.5.135 hltAntiKT5TrackJetsIter1



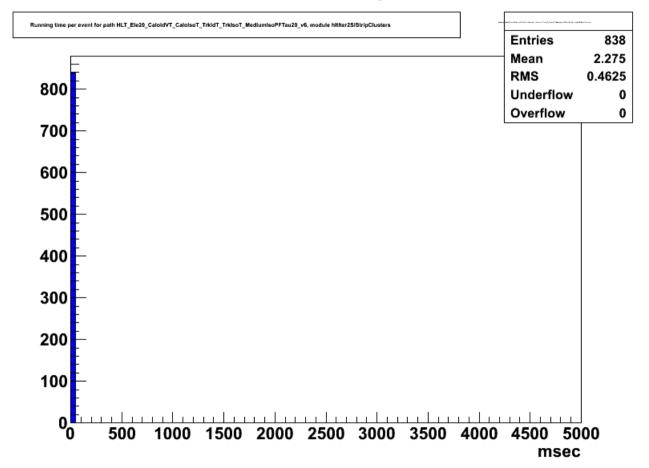
2.5.136 hltTrackAndTauJetsIter1



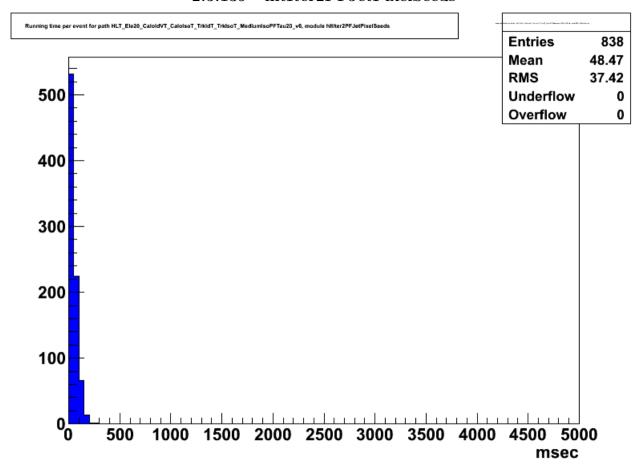
2.5.137 hltIter2ClustersRefRemoval



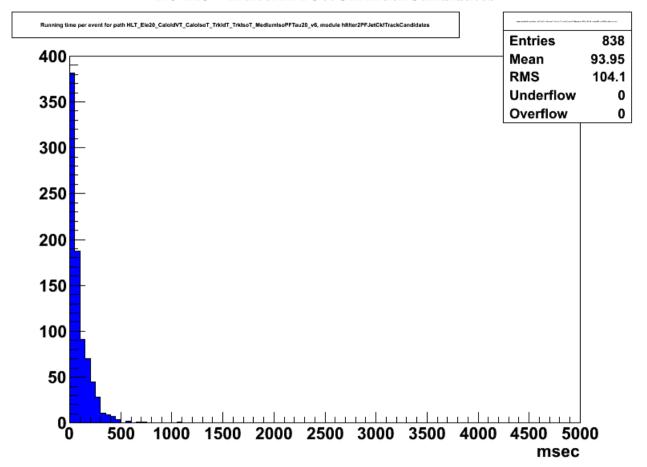
2.5.138 hltIter2SiStripClusters



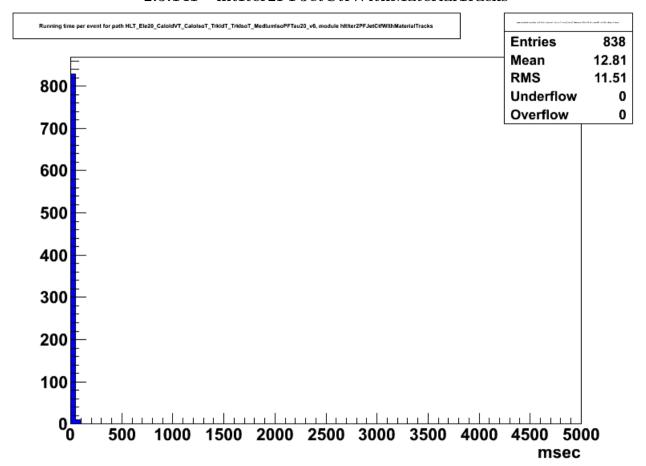
2.5.139 hltIter2PFJetPixelSeeds



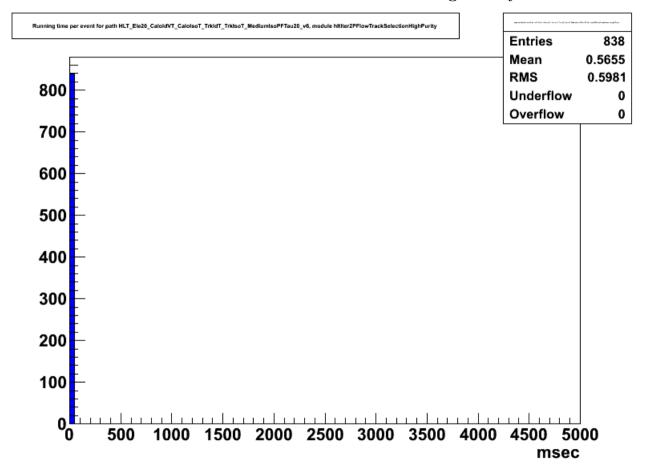
${\bf 2.5.140} \quad hlt Iter 2 PF Jet Ckf Track Candidates$



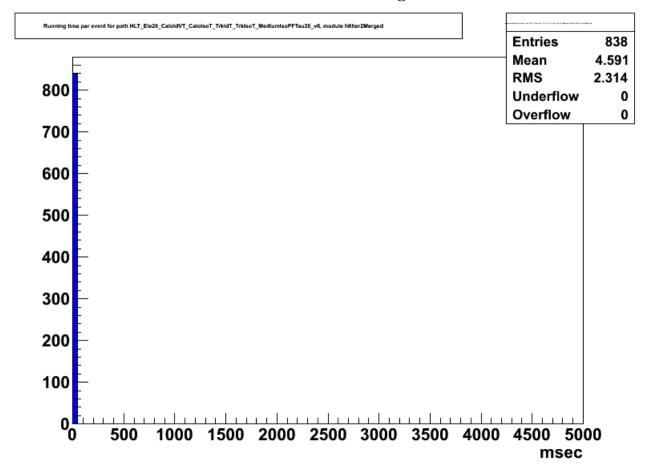
2.5.141 hltIter2PFJetCtfWithMaterialTracks



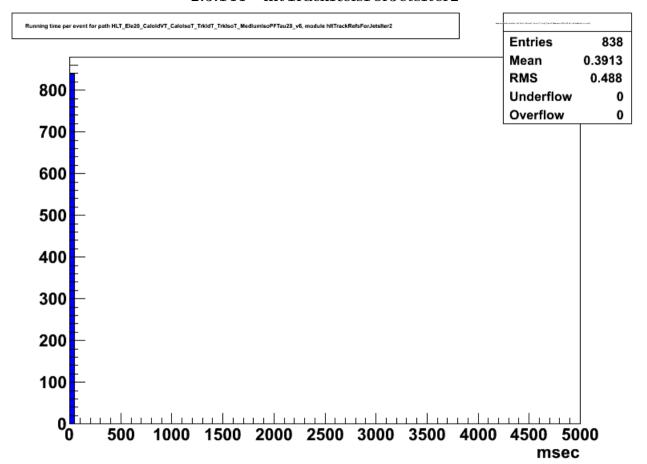
${\bf 2.5.142} \quad hlt Iter 2 PF low Track Selection High Purity$



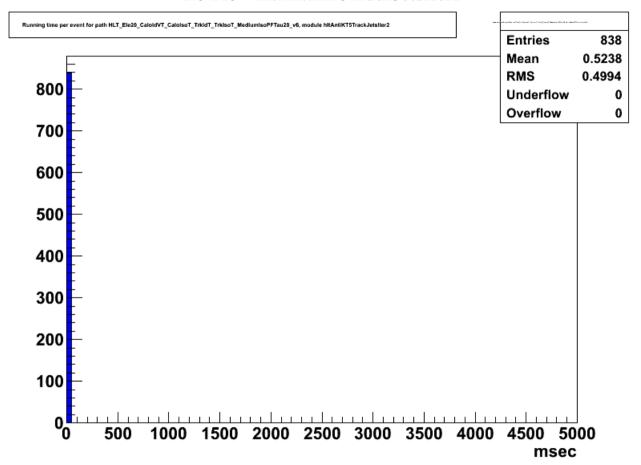
2.5.143 hltIter2Merged



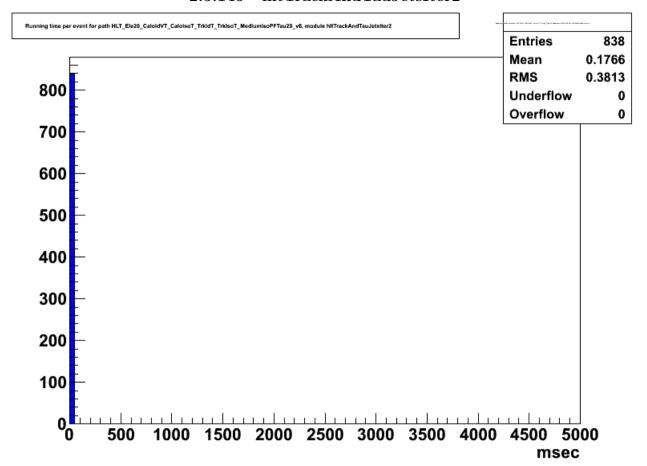
2.5.144 hltTrackRefsForJetsIter2



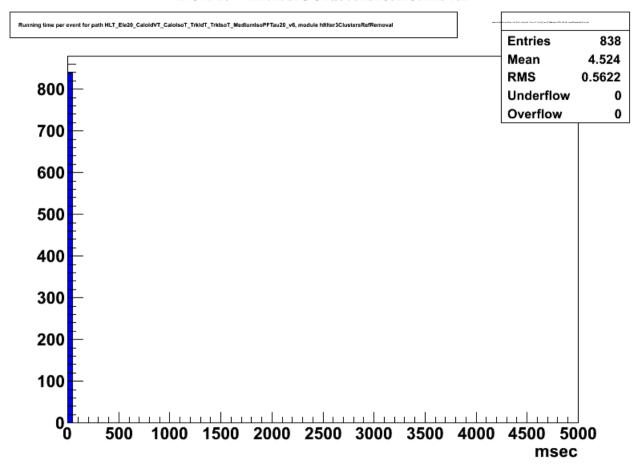
2.5.145 hltAntiKT5TrackJetsIter2



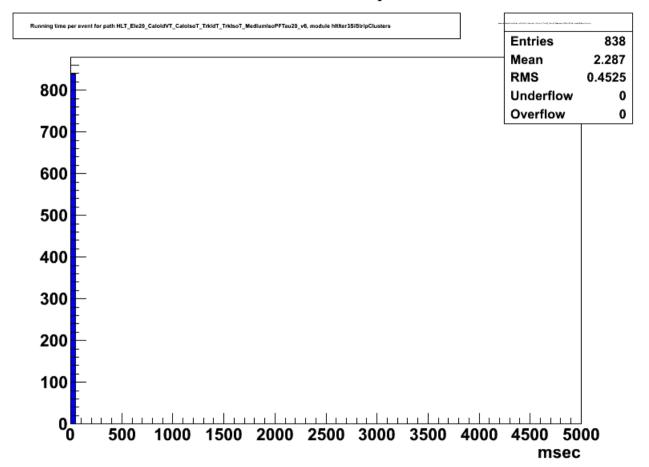
2.5.146 hltTrackAndTauJetsIter2



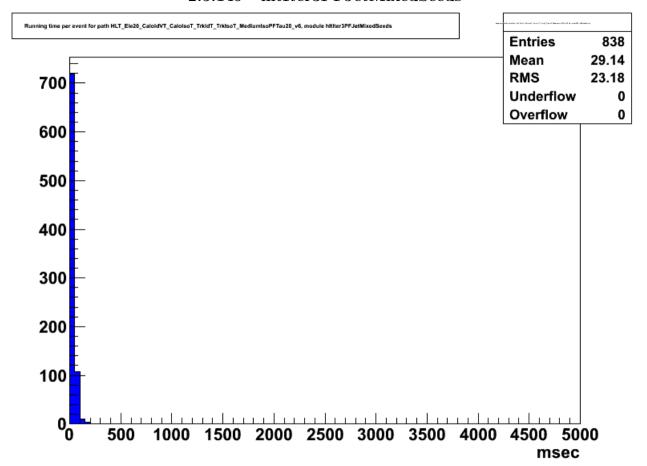
2.5.147 hltIter3ClustersRefRemoval



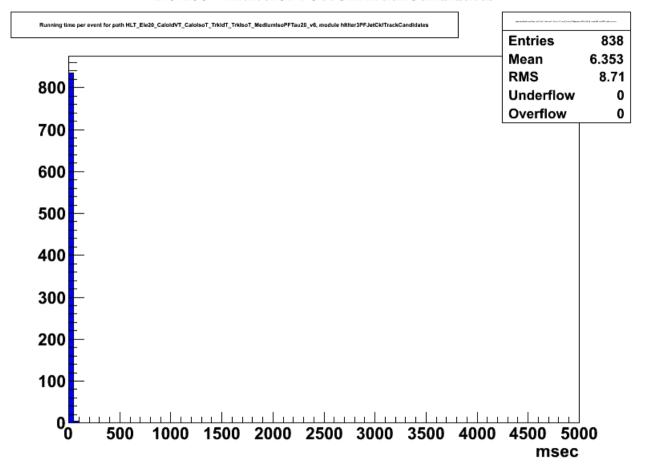
2.5.148 hltIter3SiStripClusters



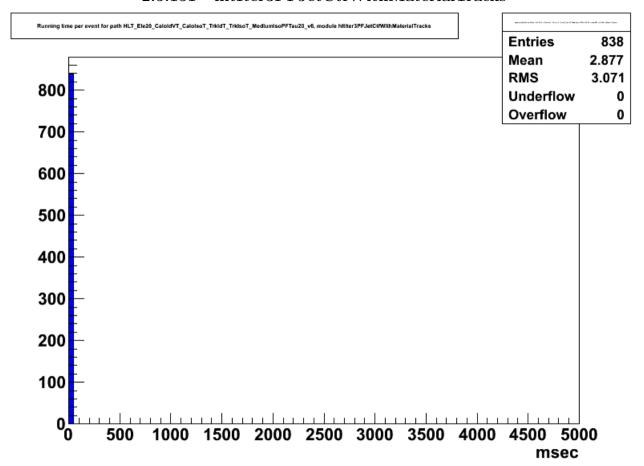
2.5.149 hltIter3PFJetMixedSeeds



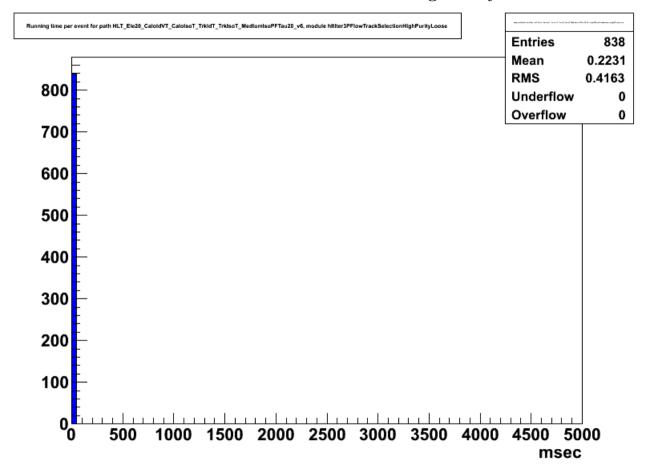
${\bf 2.5.150} \quad hlt Iter 3 PF Jet Ckf Track Candidates$



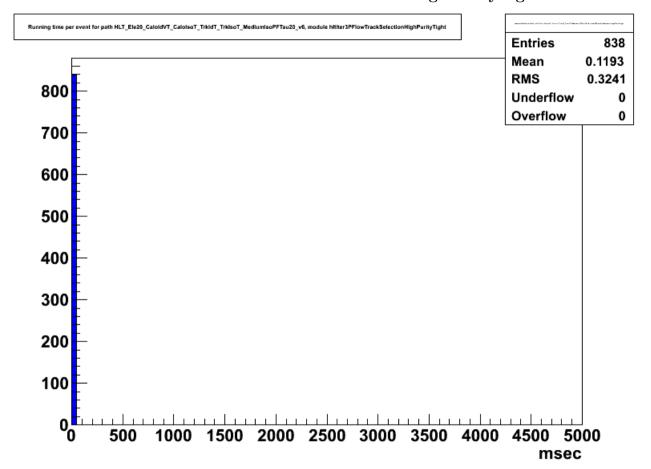
2.5.151 hltIter3PFJetCtfWithMaterialTracks



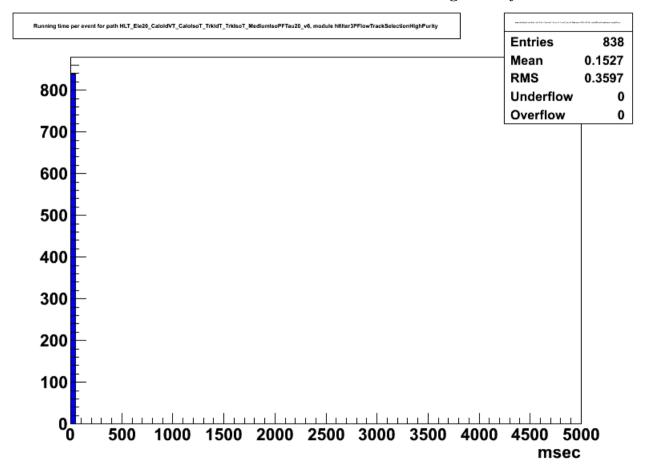
${\bf 2.5.152} \quad hlt Iter 3 PF low Track Selection High Purity Loose$



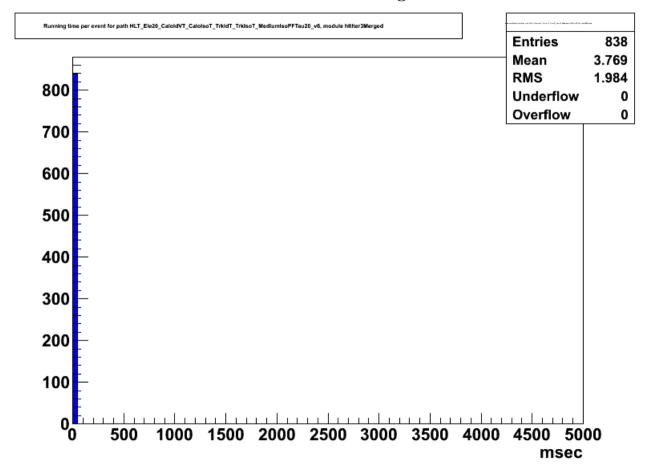
${\bf 2.5.153} \quad hlt Iter 3 PF low Track Selection High Purity Tight$



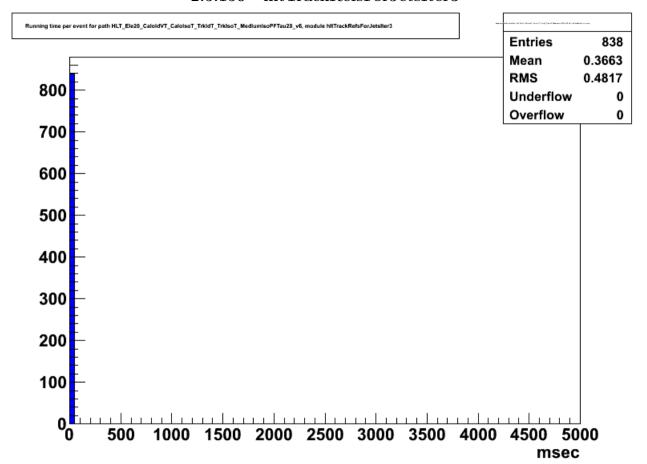
 ${\bf 2.5.154} \quad hlt Iter 3 PF low Track Selection High Purity$



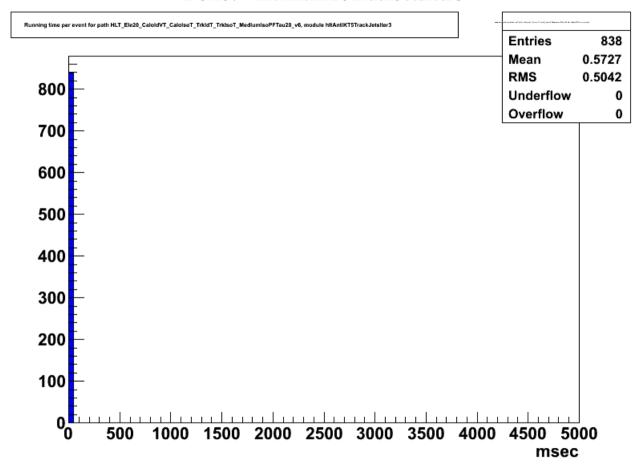
2.5.155 hltIter3Merged



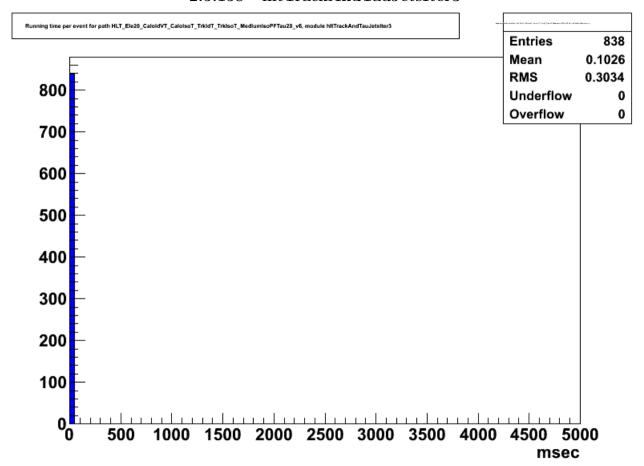
2.5.156 hltTrackRefsForJetsIter3



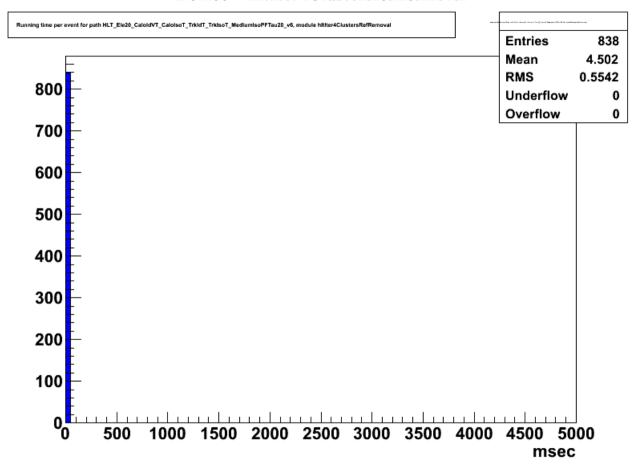
2.5.157 hltAntiKT5TrackJetsIter3



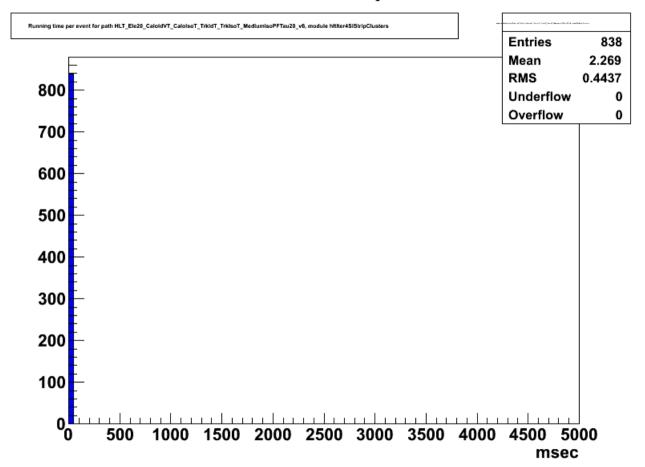
2.5.158 hltTrackAndTauJetsIter3



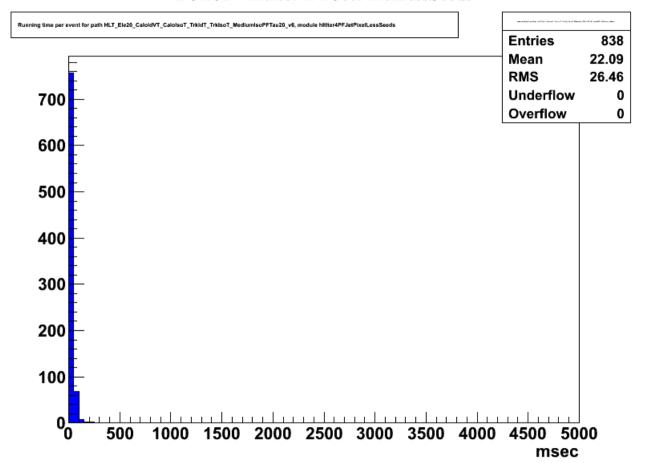
2.5.159 hltIter4ClustersRefRemoval



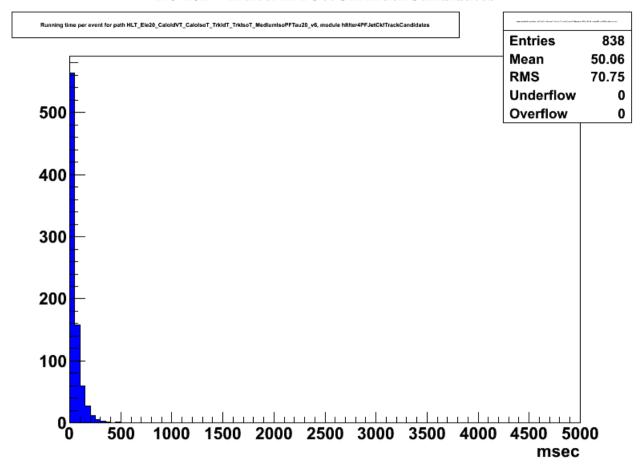
2.5.160 hltIter4SiStripClusters



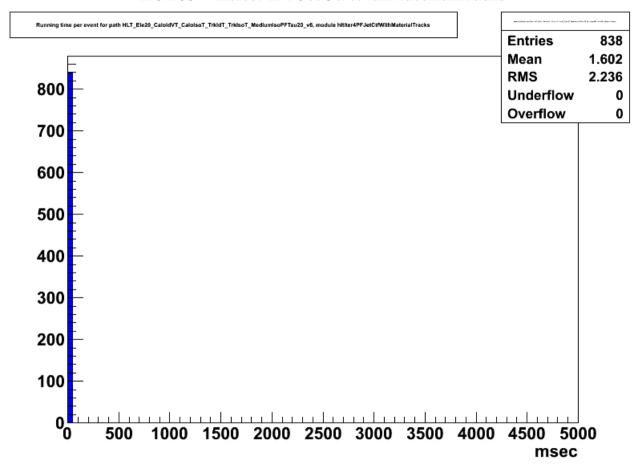
2.5.161 hltIter4PFJetPixelLessSeeds



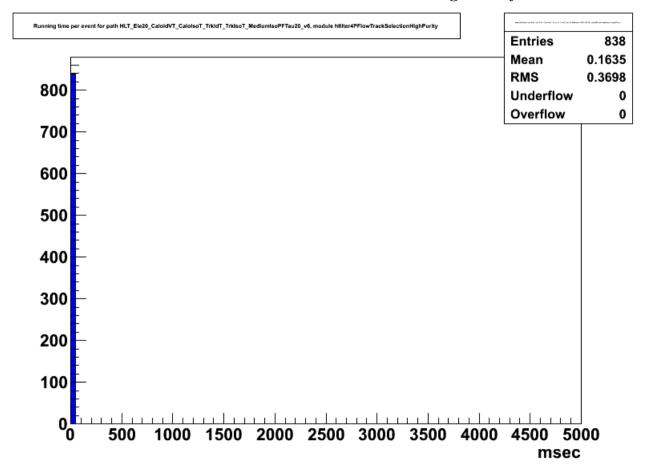
${\bf 2.5.162} \quad hlt Iter 4 PF Jet Ckf Track Candidates$



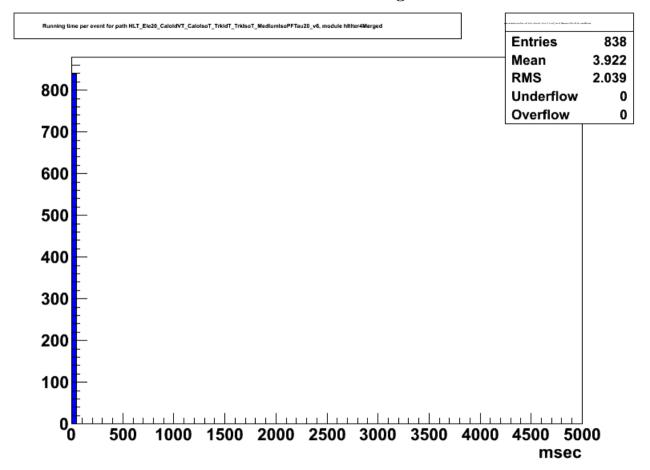
2.5.163 hltIter4PFJetCtfWithMaterialTracks



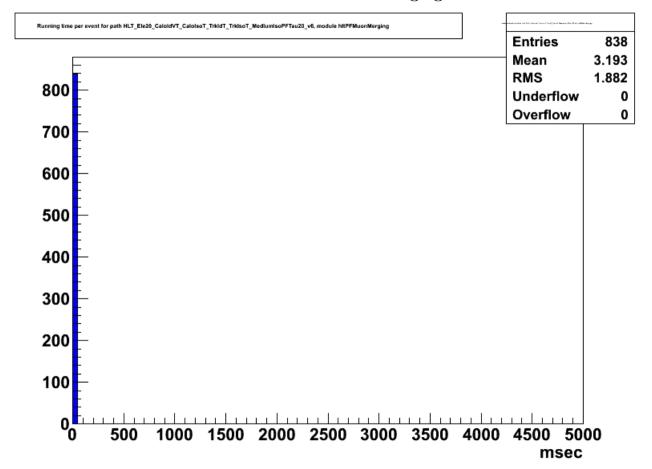
2.5.164 hltIter4PFlowTrackSelectionHighPurity



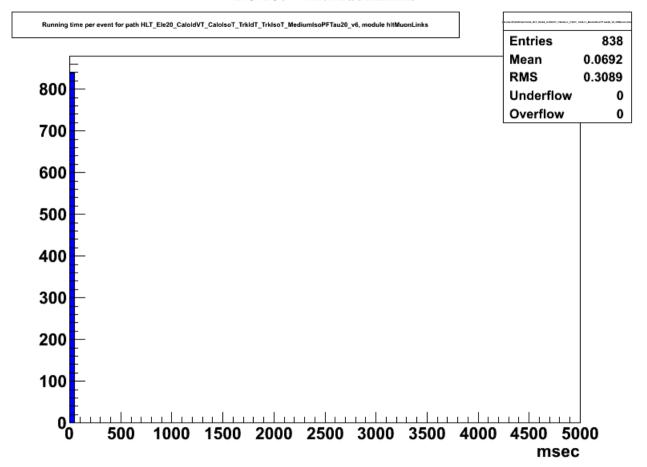
2.5.165 hltIter4Merged



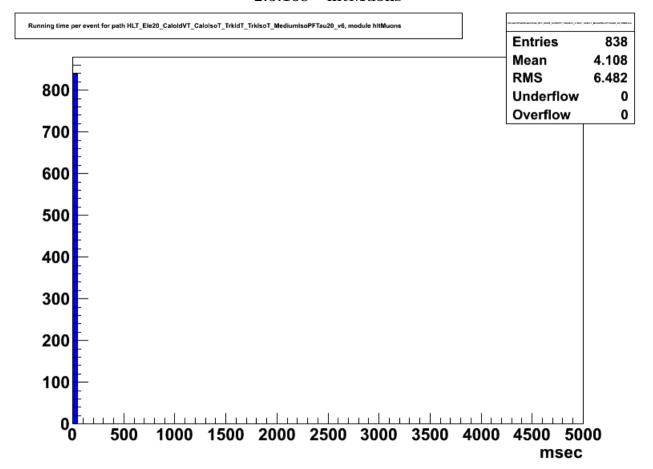
2.5.166 hltPFMuonMerging



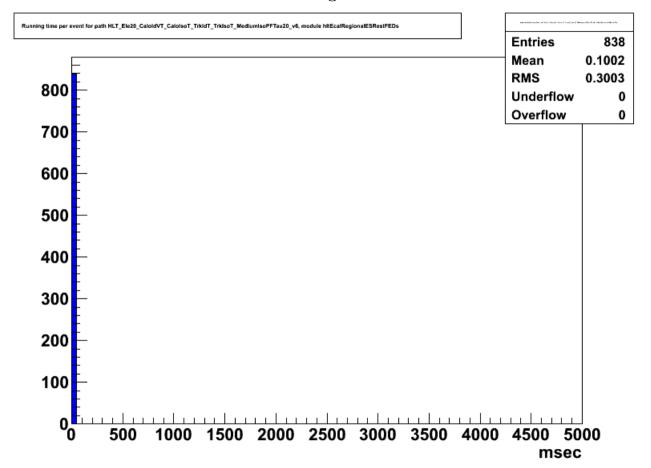
2.5.167 hltMuonLinks



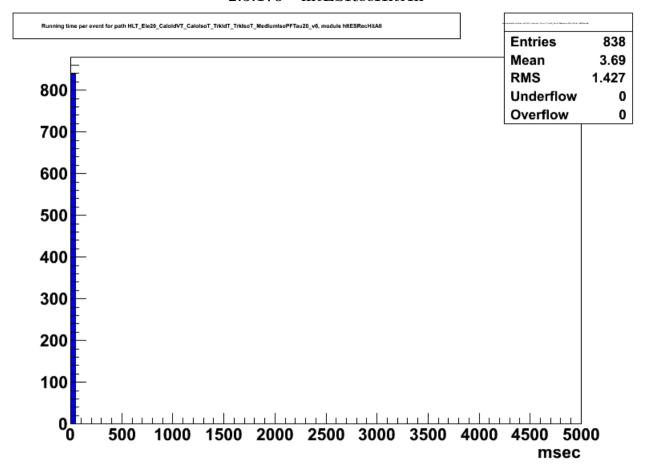
2.5.168 hltMuons



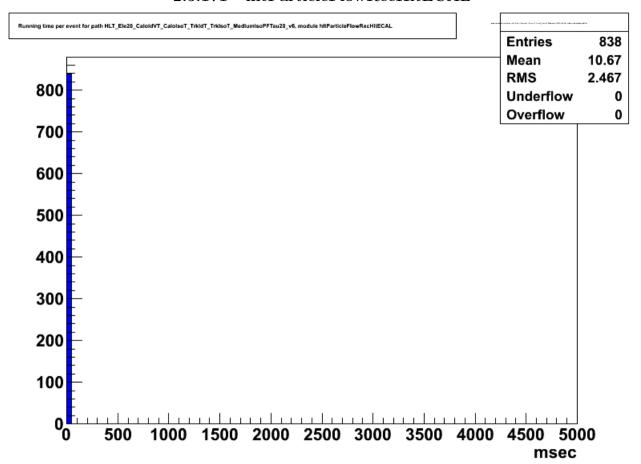
 ${\bf 2.5.169} \quad {\bf hltEcalRegionalESRestFEDs}$



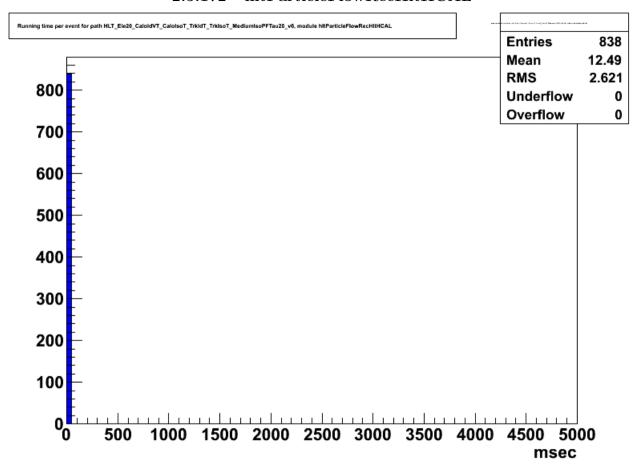
2.5.170 hltESRecHitAll



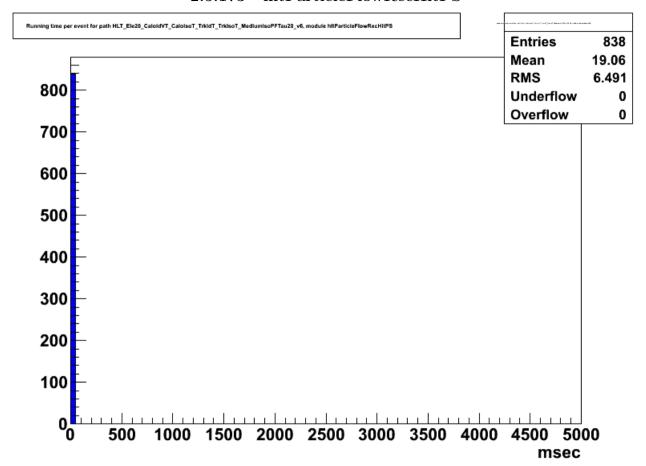
2.5.171 hltParticleFlowRecHitECAL



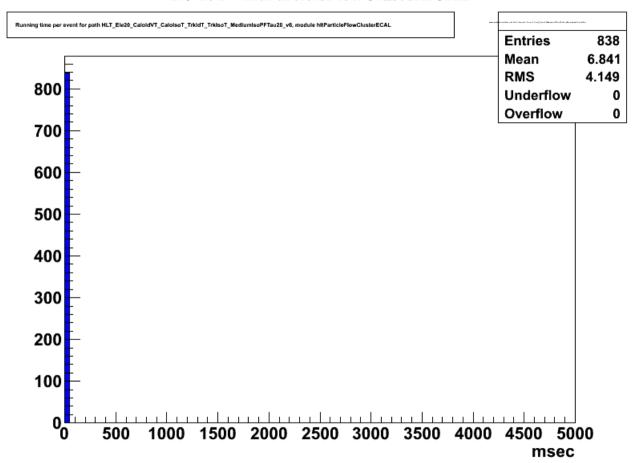
2.5.172 hltParticleFlowRecHitHCAL



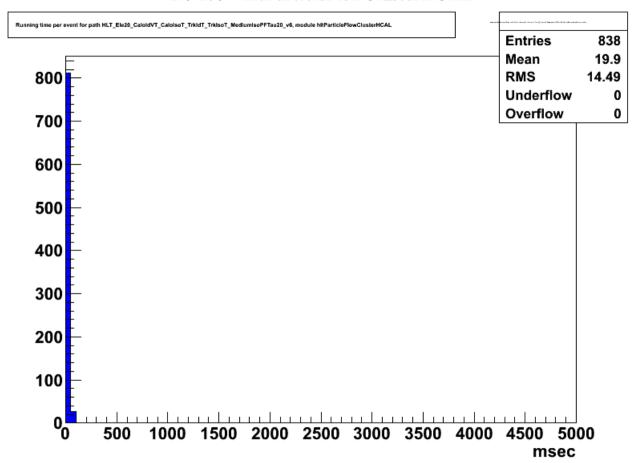
2.5.173 hltParticleFlowRecHitPS



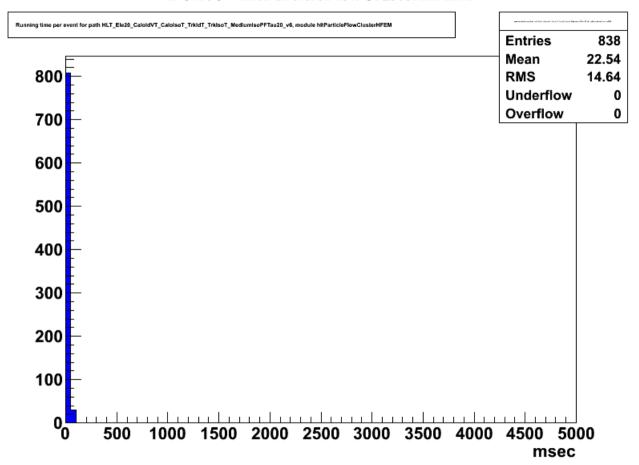
2.5.174 hltParticleFlowClusterECAL



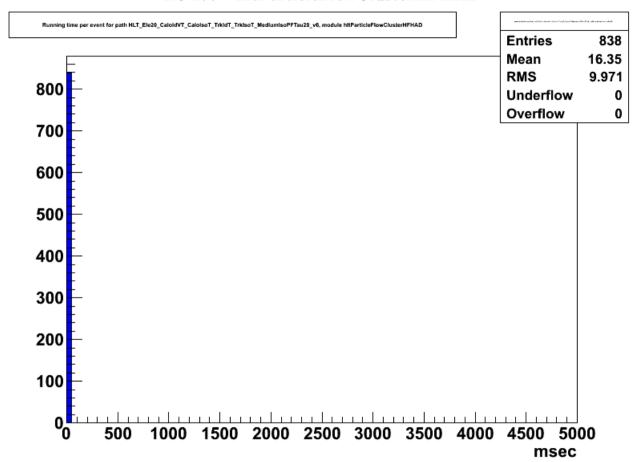
2.5.175 hltParticleFlowClusterHCAL



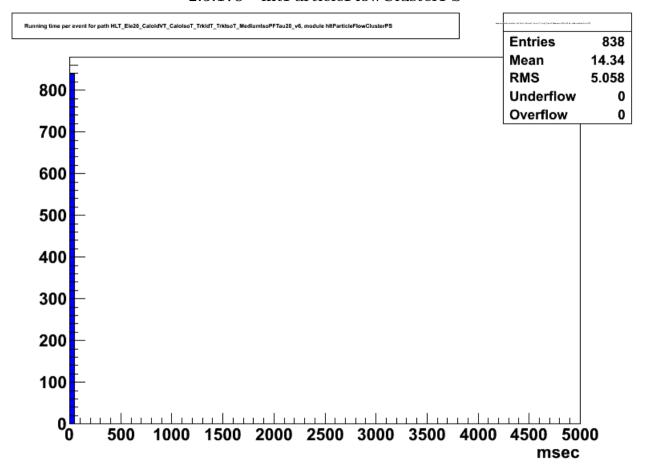
2.5.176 hltParticleFlowClusterHFEM



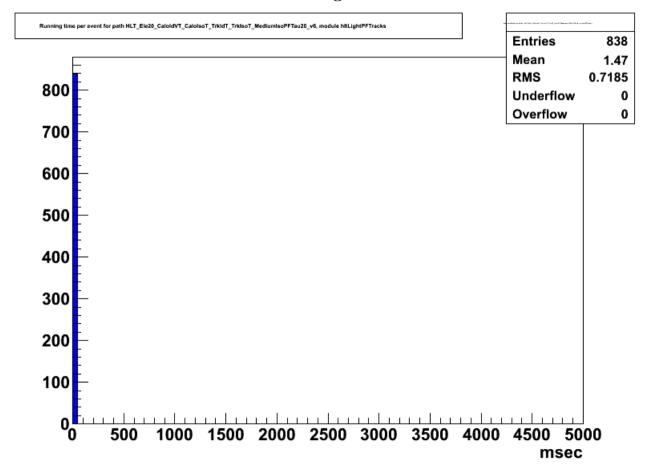
2.5.177 hltParticleFlowClusterHFHAD



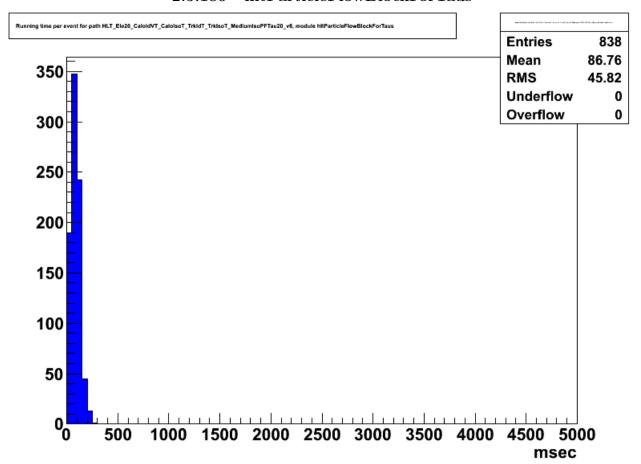
2.5.178 hltParticleFlowClusterPS



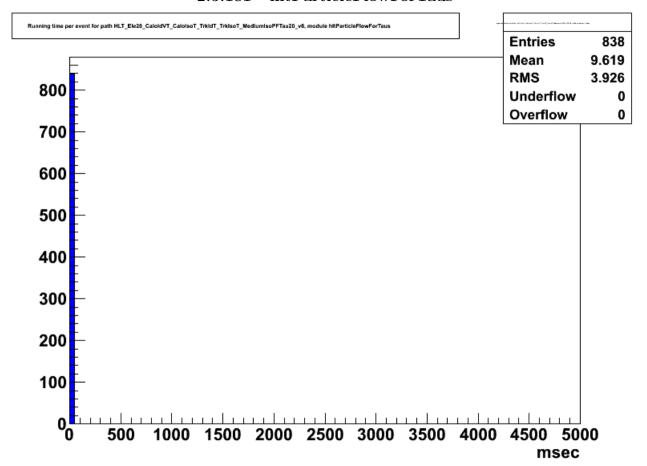
 ${\bf 2.5.179} \quad {\bf hltLightPFTracks}$



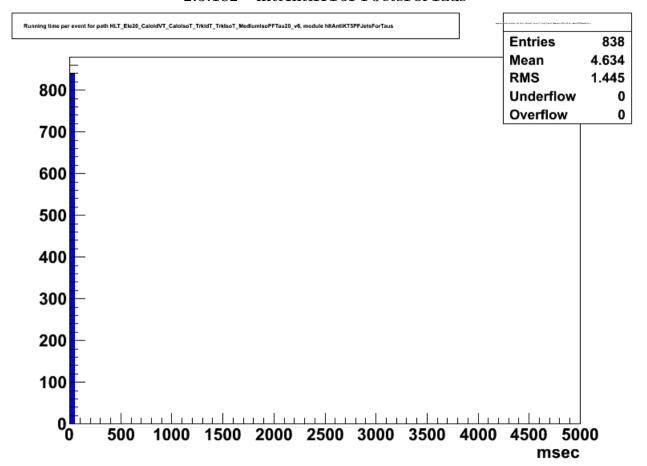
2.5.180 hltParticleFlowBlockForTaus



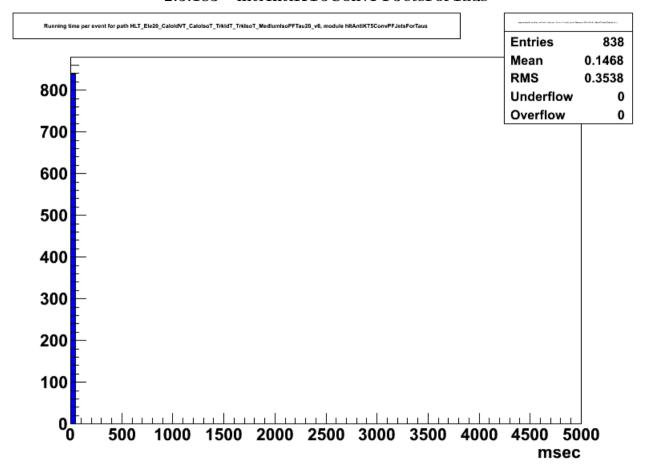
2.5.181 hltParticleFlowForTaus



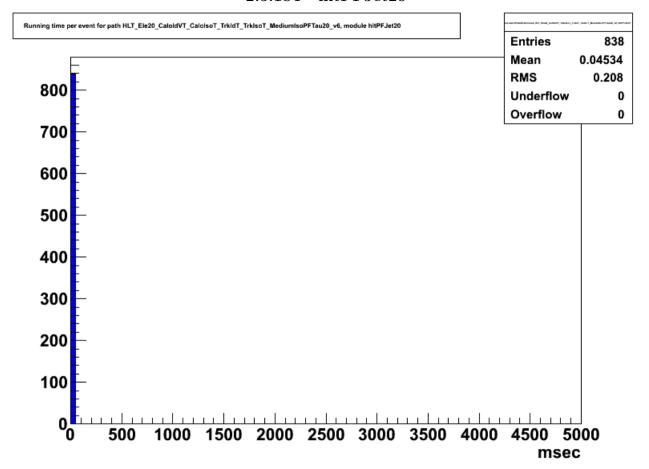
2.5.182 hltAntiKT5PFJetsForTaus



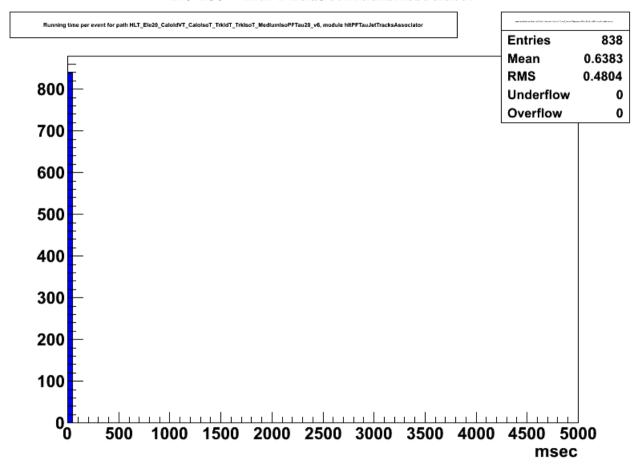
2.5.183 hltAntiKT5ConvPFJetsForTaus



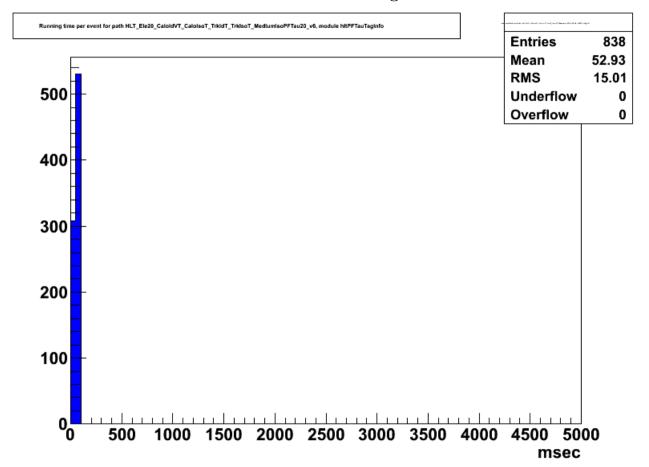
2.5.184 hltPFJet20



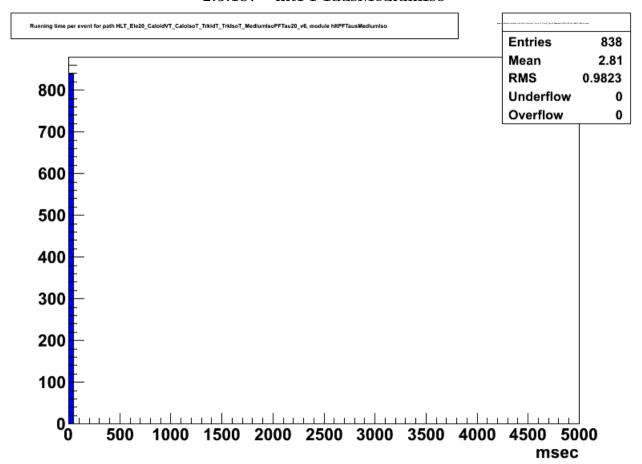
2.5.185 hltPFTauJetTracksAssociator



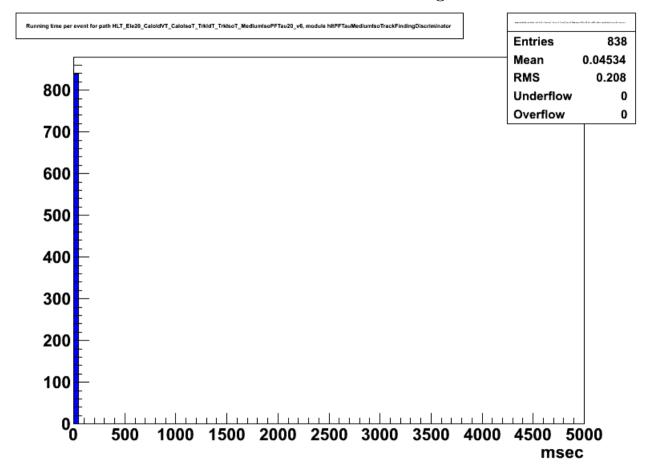
2.5.186 hltPFTauTagInfo



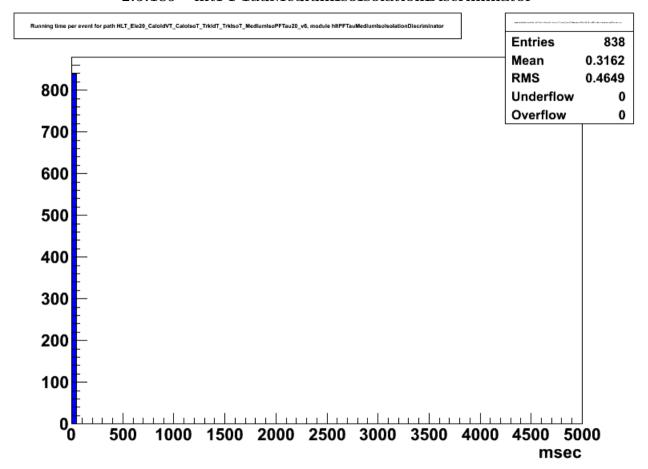
2.5.187 hltPFTausMediumIso



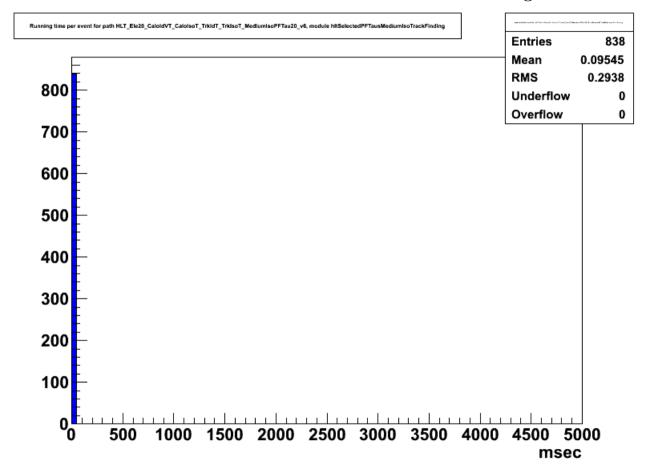
${\bf 2.5.188} \quad {\bf hltPFTauMediumIsoTrackFindingDiscriminator}$



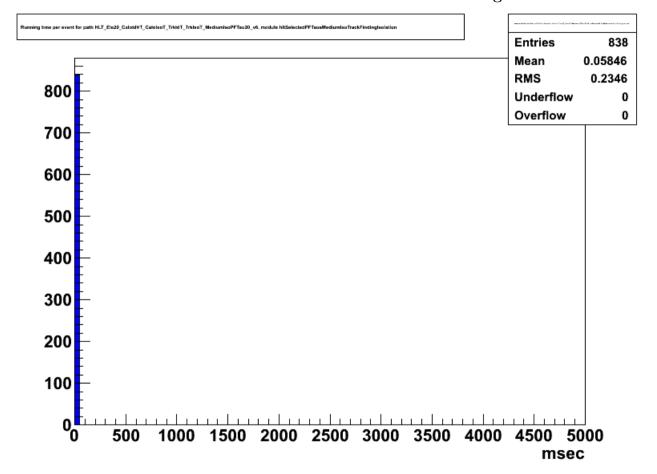
2.5.189 hltPFTauMediumIsoIsolationDiscriminator



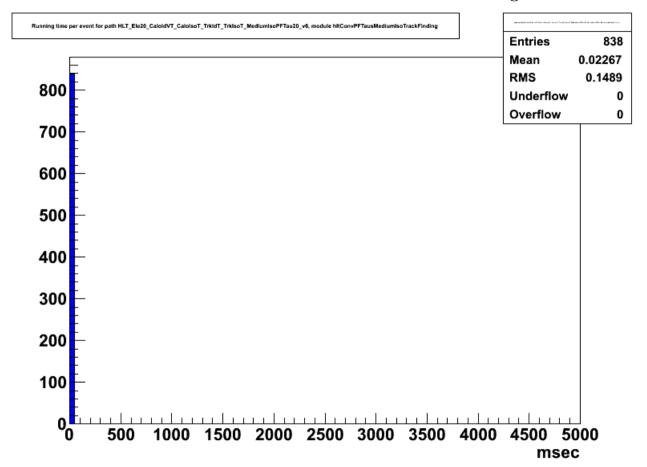
$2.5.190 \quad hlt Selected PFT aus Medium Iso Track Finding$



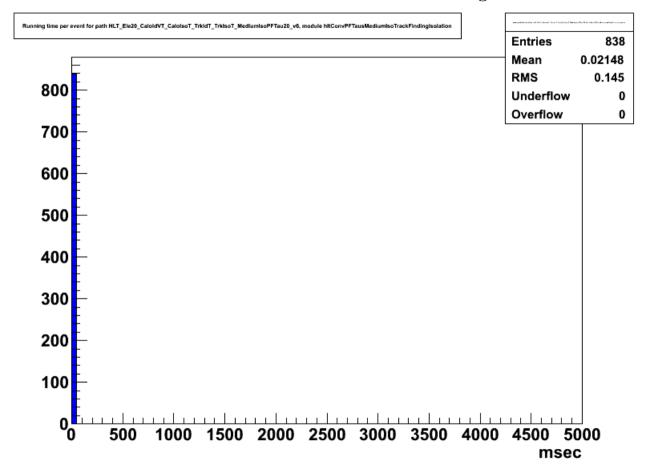
${\bf 2.5.191} \quad hlt Selected PFT aus Medium Iso Track Finding Isolation$



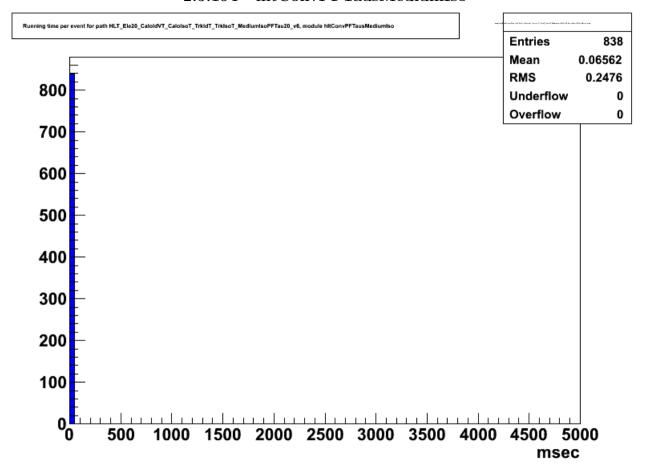
$2.5.192 \quad hlt ConvPFT aus Medium Iso Track Finding$



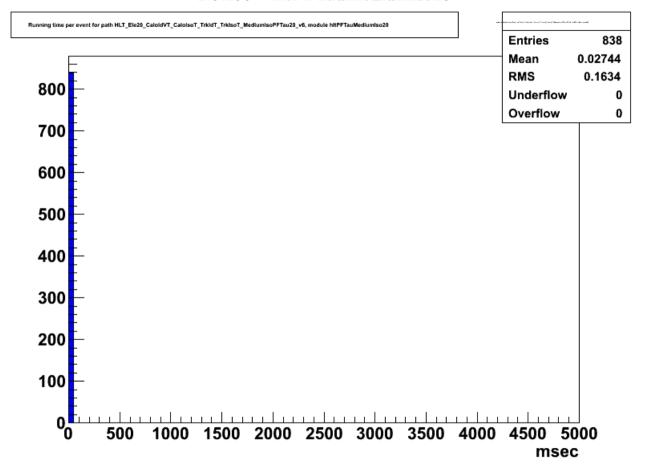
${\bf 2.5.193} \quad hlt ConvPFT aus Medium Iso Track Finding Isolation$



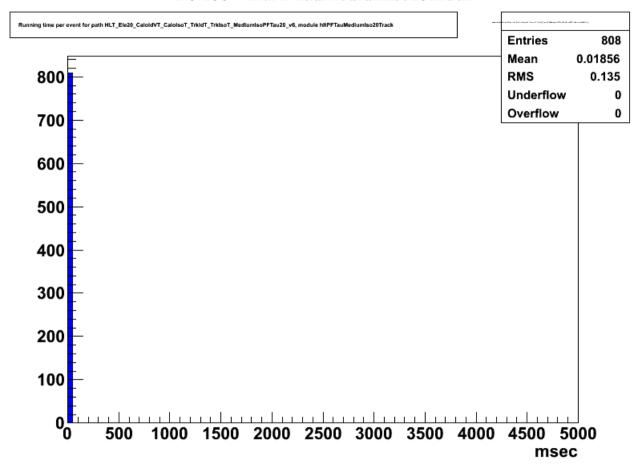
2.5.194 hltConvPFTausMediumIso



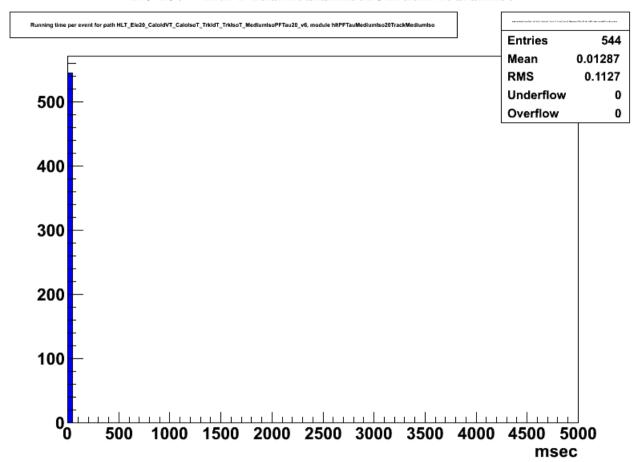
2.5.195 hltPFTauMediumIso20



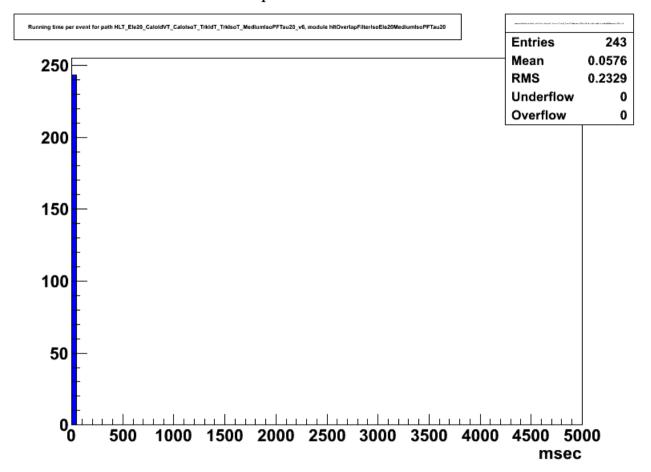
2.5.196 hltPFTauMediumIso20Track



2.5.197 hltPFTauMediumIso20TrackMediumIso



$2.5.198 \quad hlt Overlap Filter Iso Ele 20 Medium Iso PFT au 20$



2.5.199 hltBoolEnd

