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Hlt2 efficiencies and rates

Version

This is obtained with DaVinci v23r2p1. This is to be used for the July 16 meeting.

Hlt1 and 2 rates

Hlt1 eff is 99.9973%. Assuming it is already applied at 36799 kHz

Using 73310 events. Normalisation factor is 0.501978

Category	Selection	Rate	Weighted	# Coll.	% b	Hlt1Hadron	Hlt1Muon	Hlt1
Hlt1	Hlt1Global	36799		1.8	14%	13132	14809	
Hlt1	Hlt1IgnoringLumi	36799	32358±246	1.8	14%	13132	14809	
Hlt1	Hlt1Incident							
Hlt1	Hlt1Physics							
Hlt1	Hlt1Random							
Hlt1	Hlt1RawBankConversion							
Hlt1BeamGas	Hlt1BeamGasCrossing							
Hlt1BeamGas	Hlt1BeamGas							
Hlt1BeamGas	Hlt1BeamGasLeft							
Hlt1BeamGas	Hlt1BeamGasRight							
Hlt1BeamGas								
Hlt1Hadron	Hlt1DiHadron	7432±55	5996±103	1.8	17%	7432	267	
Hlt1Hadron	Hlt1SingleHadron	7980±56	6553±109	1.7	11%	7980	204	
Hlt1Hadron	Hlt1SoftDiHadron							
Hlt1Hadron		13132±65		1.8	13%	13132	352	
Hlt1Muon	Hlt1DiMuonIPC2L0	1938±30	924±34	1.9	19%	73	1938	
Hlt1Muon	Hlt1DiMuonIPGECSEg							
Hlt1Muon	Hlt1DiMuonIPCL0Di	729±19	278±17	1.9	25%	25	729	
Hlt1Muon	Hlt1DiMuonIPCL0GRC							
Hlt1Muon	Hlt1DiMuonIPCL0Seg	4449±44	3216±74	2	15%	92	4449	
Hlt1Muon	Hlt1DiMuonNoIP2L0	1505±27	611±24	1.7	15%	27	1505	
Hlt1Muon	Hlt1DiMuonNoIPGECSEg							
Hlt1Muon	Hlt1DiMuonNoIPL0Di	941±21	326±16	1.7	18%	19	941	
Hlt1Muon	Hlt1DiMuonNoIPL0GEC							
Hlt1Muon	Hlt1DiMuonNoIPL0Seg	2678±35	1787±54	1.8	13%	48	2678	
Hlt1Muon	Hlt1DiMuonNoPV2L0	14±3	7±3	1.2	0%		14	
Hlt1Muon	Hlt1DiMuonNoPVL0Di							
Hlt1Muon	Hlt1DiMuonNoPVL0Seg	28±4	21±6	1.2	0%		28	
Hlt1Muon	Hlt1MuTrack4JPsi							
Hlt1Muon	Hlt1MuTrack	1667±28	995±38	1.7	63%	120	1667	
Hlt1Muon	Hlt1SingleMuonIPGEC							
Hlt1Muon	Hlt1SingleMuonIPCL0	7453±55	6025±105	1.7	27%	238	7453	
Hlt1Muon	Hlt1SingleMuonNoIPGEC							
Hlt1Muon	Hlt1SingleMuonNoIPL0	569±17	370±25	1.7	33%	48	569	
Hlt1Muon		14809±67		1.8	19%	352	14809	

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Hlt1Electron	Hlt1ElectronFromPi0TrackNoIP							
Hlt1Electron	Hlt1ElectronFromPi0TrackWithIP							
Hlt1Electron	Hlt1ElectronTrack							
Hlt1Electron	Hlt1ElectronTrackNoIP	459±15	337±24	1.7	10%	78	12	
Hlt1Electron	Hlt1ElectronTrackWithIP	494±16	201±14	1.7	19%	206	22	
Hlt1Electron	Hlt1SingleElectron	2875±36	2343±65	1.7	14%	495	72	
Hlt1Electron	Hlt1SingleElectronFromPi0							
Hlt1Electron		3192±38		1.7	13%	523	79	
Hlt1L0	Hlt1L0DiMuon,lowMult							
Hlt1L0	Hlt1L0DiMuon							
Hlt1L0	Hlt1L0Electron							
Hlt1L0	Hlt1L0Forced							
Hlt1L0	Hlt1L0GlobalPi0							
Hlt1L0	Hlt1L0Hadron	1±1	1±1	1	0%			
Hlt1L0	Hlt1L0LocalPi0							
Hlt1L0	Hlt1L0Muon,lowMult							
Hlt1L0	Hlt1L0Muon	1±1	1±1	1	0%			
Hlt1L0	Hlt1L0MuonNoGlob							
Hlt1L0	Hlt1L0Photon							
Hlt1L0		1±1		1	0%			
Hlt1Lumi	Hlt1LumiBeamCrossing							
Hlt1Lumi	Hlt1Lumi							
Hlt1Lumi	Hlt1LumiNoBeam							
Hlt1Lumi	Hlt1LumiSingleBeamLeft							
Hlt1Lumi	Hlt1LumiSingleBeamRight							
Hlt1Lumi								
Hlt1Photon	Hlt1PhoFromEle							
Hlt1Photon	Hlt1Photon	4129±43	3910±87	1.9	8%	162	76	
Hlt1Photon	Hlt1PhotonFromEle	3037±37	2861±74	1.9	9%	116	58	
Hlt1Photon		7022±53		1.9	8%	271	133	
Hlt1Velo	Hlt1VeloASide							
Hlt1Velo	Hlt1VeloAlign							
Hlt1Velo	Hlt1VeloCSide							
Hlt1Velo	Hlt1VeloClosing							
Hlt1Velo								
Hlt1XPress	Hlt1XPress	81±6	37±6	1.8	13%	25	36	
Hlt1XPress		81±6		1.8	13%	25	36	
Exclusive	Hlt2B2HH	16±3	9±2	2	40%	11	4	
Exclusive	Hlt2B2LHCbPhysics.JpsiX_MuMu	43±5	19±2	1.6	17%	1	43	
Exclusive	Hlt2B2TwoBody	22±3	11±2	2.3	30%	15	6	
Exclusive	Hlt2Bd2JpsiKstar	1±1	0.2±0.2	4	0%		1	
Exclusive	Hlt2Bd2JpsiKstarHighMass	1±1	0.1±0.1	1	0%		1	
Exclusive	Hlt2Bd2JpsiKstarLowMass	1±1	0.3±0.3	2	0%		1	
Exclusive	Hlt2Bd2JpsiKstarSignal	12±2	4±1	1.6	8%	1	11	
Exclusive	Hlt2Bd2JpsiMuMuKsDDBiased							
Exclusive	Hlt2Bd2JpsiMuMuKsDDUnbiased							
Exclusive	Hlt2Bd2JpsiMuMuKsLLBiased	13±3	5±1	1.8	28%	3	10	
Exclusive	Hlt2Bd2JpsiMuMuKsLLUnbiased	8±2	3±1	1.6	20%	2	7	
Exclusive	Hlt2Bs2JpsiPhi							
Exclusive	Hlt2Bs2JpsiPhiDetached	8±2	3±1	2	26%	1	7	

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Exclusive	Hlt2Bs2JpsiPhiHighMass						
Exclusive	Hlt2Bs2JpsiPhiLowMass	1±1	0.3±0.3	1	0%	1	
Exclusive	Hlt2Bs2JpsiPhiPrescaled	13±3	7±1	2	16%	1	12
Exclusive	Hlt2Bs2JpsiPhiSignal	3±1	1±0.5	2	0%		2
Exclusive	Hlt2Bs2JpsiPhiSwave	1±1	0.1±0.1	1	0%		1
Exclusive	Hlt2LHCbPhysics.Bs2PhiPhi	3±1	1.1±0.5	2	66%	2	1
Exclusive	Hlt2Bu2JpsiK						
Exclusive	Hlt2Bu2JpsiKHighMass						
Exclusive	Hlt2Bu2JpsiKLowMass						
Exclusive	Hlt2Bu2JpsiKSignal	5±2	2±1	1.7	0%		5
Exclusive	Hlt2Bu2MuMuK						
Exclusive	Hlt2Bu2MuMuKHighMass						
Exclusive	Hlt2Bu2MuMuKJpsi						
Exclusive	Hlt2Bu2MuMuKSignal	1±1	0.1±0.1	3	0%	1	
Exclusive	Hlt2Bu2eeK	1±1	0.1±0.1	3	100%	1	
Exclusive	Hlt2Bu2eeKHighMass	22±3	16±3	2.4	9%	15	3
Exclusive	Hlt2Bu2eeKJpsi	1±1	1±1	2.5	50%	1	
Exclusive	Hlt2Bu2eeKSignal	22±3	18±3	2.7	13%	13	5
Exclusive	Hlt2DrellYan	39±4	17±2	1.7	33%	3	38
Exclusive	Hlt2HidValley	19±3	12±2	3.6	10%	14	3
Exclusive	Hlt2KstGamma	74±6	61±5	2.3	14%	16	10
Exclusive	Hlt2PhiGamma	26±4	16±2	2.2	19%	6	3
Exclusive	Hlt2UnbiasedBs2PhiPhi	43±5	38±4	1.9	9%	17	9
Exclusive	Hlt2Z02MuMu						
Exclusive		338±13		2.1	19%	101	154
Leptons	Hlt2BiasedDiMuonIP	259±11	173±9	2.2	62%	37	217
Leptons	Hlt2BiasedDiMuonMass	93±7	47±4	1.9	51%	7	88
Leptons	Hlt2BiasedDiMuonRefined	17±3	14±3	2.1	33%	2	15
Leptons	Hlt2BiasedDiMuonRobust	38±4	32±4	2.2	32%	6	28
Leptons	Hlt2IncMuTrackMid	429±15	281±11	1.8	78%	63	388
Leptons	Hlt2SingleHighPTMuon	10±2	6±2	2.1	35%	4	8
Leptons	Hlt2SingleMuon	884±21	579±15	1.7	64%	101	851
Leptons	Hlt2SingleMuonMid	374±14	154±6	1.6	71%	57	359
Leptons	Hlt2UnbiasedBmm	99±7	64±5	1.9	27%	13	93
Leptons	Hlt2UnbiasedDiMuon	35±4	23±3	1.9	25%	3	34
Leptons	Hlt2UnbiasedJPsi	302±12	232±10	1.8	13%	11	286
Leptons	Hlt2UnbiasedPsi2S	73±6	61±5	1.8	17%	5	67
Leptons		1866±30		1.8	50%	192	1729
Charm	Hlt2DX3BodyCopKsDD	130±8	85±6	1.6	43%	89	31
Charm	Hlt2DX3BodyCopNoKs	26±4	15±3	1.8	57%	15	8
Charm	Hlt2Topo2BodyCharmSA	3±1	3±1	1.6	16%	3	
Charm	Hlt2Topo3BodyCharmSA	3±1	3±1	1.2	0%	2	1
Charm	Hlt2Topo4BodyCharmSA	1±1	0.3±0.2	1	50%	1	
Charm	Hlt2TopoTF2BodyCharmSignal	219±10	142±8	1.7	42%	177	42
Charm	Hlt2TopoTF2BodyCharmWideMass	33±4	16±2	1.6	50%	23	9
Charm	Hlt2TopoTF3BodyCharmSignal	985±22	611±16	1.6	50%	737	203
Charm	Hlt2TopoTF3BodyCharmWideMass	74±6	41±4	1.7	39%	55	14
Charm	Hlt2TopoTF4BodyCharmSignal	382±14	182±8	1.6	55%	294	65
Charm	Hlt2TopoTF4BodyCharmWideMass	41±5	20±3	1.5	43%	30	8
Charm		1428±26		1.6	46%	1051	300

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Phi	Hlt2IncPhi	166±9	132±8	1.8	30%	100	45	
Phi	Hlt2IncPhiRobust	2±1	2±1	1.2	0%	2		
Phi	Hlt2IncPhiTF	2±1	1±1	1.2	75%	2	1	
Phi		170±9		1.8	30%	103	45	
Topo	Hlt2Topo2BodySA	5±2	3±1	2.1	10%	4	1	
Topo	Hlt2Topo3BodySA	5±2	3±1	1.6	33%	4	1	
Topo	Hlt2Topo4BodySA	7±2	6±2	2.2	35%	4	2	
Topo	Hlt2TopoTF2BodyReq2Yes	44±5	8±1	1.9	37%	36	9	
Topo	Hlt2TopoTF2BodyReq3Yes	66±6	13±1	2	33%	54	12	
Topo	Hlt2TopoTF2BodyReq4Yes	73±6	17±2	2.1	30%	58	14	
Topo	Hlt2TopoTF2BodySA	1±1	1±1	2	0%	1		
Topo	Hlt2TopoTF3BodyReq2Yes	77±6	13±1	1.9	34%	61	16	
Topo	Hlt2TopoTF3BodyReq3Yes	513±16	124±4	1.8	54%	374	134	
Topo	Hlt2TopoTF3BodyReq4Yes	592±17	161±5	1.9	51%	428	153	
Topo	Hlt2TopoTF3BodySA							
Topo	Hlt2TopoTF4BodyReq2Yes	79±6	14±1	1.9	35%	62	16	
Topo	Hlt2TopoTF4BodyReq3Yes	744±19	209±6	1.8	56%	533	187	
Topo	Hlt2TopoTF4BodyReq4Yes	1057±23	410±11	1.9	53%	730	274	
Topo	Hlt2TopoTF4BodySA	2±1	1±1	1.7	25%	1	1	
Topo		1224±24		1.9	52%	841	321	
Hlt2	Hlt2Global	4144±43		1.8	44%	1818	2094	

Rate

Hlt2 rate after Hlt1 (Hz)

Weighted

Hlt2 rate (Hz) after Hlt1 and re-weighting all events by the number of selections that have selected it (i.e. how much does this selection contribute to the rate?). The sum should be equal to the Hlt2 rate.

This is probably the number you want.

coll

Average number of pp collision in selected events (the lower the better)

% b

Fraction of b quark in selected events (the higher the better)

% Remaining

Rate (Hz) of the selection in the row **requiring** the category in the column

Signal efficiencies

Signal	Trigger	L0	Hlt	Hlt1	Hlt2	Hlt2/1	Tk	Best Sel	2nd Sel
B2HH	46 %	65 %	70 %	79 %	89 %	93 %	93 %	B2HH: 87 %	TopoTF2BodyReq2Yes: 8 %
B2MuMu	93 %	98 %	95 %	98 %	97 %	97 %	95 %	UnbiasedBmm: 93 %	BiasedDiMuonMass: 91 %
Bd2JpsiMuMuKs	86 %	95 %	90 %	93 %	96 %	97 %	18 %	UnbiasedJPsi: 95 %	BiasedDiMuonMass: 81 %
Bd2MuMuKstar	83 %	91 %	91 %	93 %	97 %	98 %	86 %	IncMuTrackMid: 90 %	TopoTF4BodyReq4Yes: 7 %
Bs2DsDs	35 %	61 %	57 %	64 %	89 %	92 %	65 %	TopoTF4BodyReq4Yes: 73 %	TopoTF3BodyCharmSign: 63 %
Bs2DsH	35 %	55 %	64 %	71 %	90 %	95 %	86 %	TopoTF4BodyReq4Yes: 84 %	TopoTF4BodyReq3Yes: 8 %
Bs2JpsiPhi	84 %	94 %	90 %	92 %	98 %	98 %	85 %	UnbiasedJPsi: 93 %	BiasedDiMuonMass: 79 %

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		%	%			%		
Bs2JpsiPhiBiased	86 %	94 %	92 %	93 %	98 %	98 %	86 %	UnbiasedJPsi: 86 %
Bs2JpsieePhi	20 %	52 %	39 %	53 %	72 %	79 %	73 %	IncPhi: 60 %
Bs2KstarKstar	28 %	51 %	55 %	67 %	82 %	90 %	81 %	TopoTF4BodyReq4Yes: 79 %
Bs2PhiGamma	55 %	82 %	66 %	71 %	93 %	97 %	94 %	PhiGamma: 92 %
Bs2PhiPhi	24 %	46 %	52 %	55 %	93 %	95 %	77 %	IncPhi: 84 %
Bu2D0K_KsHH	26 %	55 %	47 %	65 %	72 %	76 %	22 %	TopoTF3BodyReq3Yes: 49 %
Bu2MuMuK	88 %	98 %	90 %	95 %	95 %	95 %	91 %	IncMuTrackMid: 87 %
Bu2eeK	39 %	60 %	64 %	72 %	89 %	92 %	92 %	Bu2eeKSignal: 83 %
PromptDstar	11 %	41 %	27 %	38 %	70 %	82 %	71 %	TopoTF2BodyCharmSignal: 82 %
SecondaryDstar	31 %	61 %	51 %	71 %	72 %	80 %	67 %	TopoTF4BodyReq4Yes: 50 %
Z0	99 %	100 %	99 %	99 %	99 %	100 %	0 %	SingleHighPTMuon: 100 %

Signal

Signal sample as described in `Hlt/HltSelChecker` options.

Trigger

Overall Trigger efficiency.

L0

L0 efficiency.

Hlt

Hlt efficiency on L0 events.

Hlt1

Hlt1 efficiency on L0 events.

Hlt2

Overall Hlt2 efficiency including all selections.

Hlt2/Hlt1

Hlt2 efficiency given Hlt1.

Tk

Hlt2 tracking efficiency on all tracks.

Sel

Name and efficiency (on Hlt1 accepted events) of 4 best Hlt2 selections.

All efficiencies after L0 and offline (except L0 of course). Null efficiencies are due to missing or incorrect Hlt2 selections. To know what is exactly done and what offline selection is used see `HltSelChecker`.

-- PatrickKoppenburg - 14 Jul 2009

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