

Register analysis results

\*\* for SPEC benchmarks: test workload was chosen

\*\*\* workload: approx. 150 MB text file sourced from /dev/urandom

Static: Number of times the register is mentioned in the binary. Computed statically by parsing and analysing the instructions.  
Dynamic: Number of register accesses during execution. Computed dynamically by logging each read/write to a profiler.

Run via: ./translator -a -f <binary> (will not execute the binary)  
Run via: ./translator -p -f <binary> (just arguments) (will execute the binary)

Register hits										Register hits										Register hits	
Static										Dynamic										Register/Mnemonic	
Register/Mnemonic	sort	grip	602.gcc.s	605.mcf.s	620.omnetpp.s	631.deeppjeng.s	Sum			Register/Mnemonic	sort	grip	602.gcc.s*	605.mcf.s*	620.omnetpp.s*	631.deeppjeng.s*	Sum			Register/Mnemonic	
x0/zero	20024	28893	560759	24893	131149	28214	793942	28214	793942	x0/zero	4475899	3794391237	2667856	4655533339	2253566075	461748889	1529858395	1529858395	x0/zero		
x1/ra	5812	8182	362655	6614	129527	7473	520283	7473	520283	x1/ra	3091181	1089697558	1302509	1433275269	1449301801	2595580782	6572249100	6572249100	x1/ra		
x2/sp	13359	17019	288180	15256	168528	17580	519922	17580	519922	x2/sp	6437556	3075114960	3524710	612594837	3208313247	5135177020	12041755512	12041755512	x2/sp		
x3/gp	997	3	5353	1108	4808	1329	13398	1329	13398	x3/gp	18171	2	63299	1634553	122141943	805824664	929682632	929682632	x3/gp		
x4/tp	374	535	511	476	726	480	3158	480	3158	x4/tp	9038	3358	15960	1458785	69482177	1886	7098904	7098904	x4/tp		
x5/ld	205	319	1952	317	632	402	3807	402	3807	x5/ld	16750	12	59607	1296734873	6869180	265287553	1568967975	1568967975	x5/ld		
x6/t1	1190	1549	14236	1570	11551	1919	32015	1919	32015	x6/t1	112897	90	111626	2039293039	192875537	798436994	330830183	330830183	x6/t1		
x7/t2	220	236	1616	251	577	376	3276	376	3276	x7/t2	26129	19	25107	13514095	8659547	12799498	150218795	150218795	x7/t2		
x8/ld/tp	9624	17533	307313	11809	100221	12982	362382	12982	362382	x8/ld/tp	50586780	6770281431	1656653	3335711878	1502419851	2321570646	13982127239	13982127239	x8/ld/tp		
x9/a0	5289	7132	158332	6617	63935	7365	496591	7365	496591	x9/a0	496591	1313051977	1158792	945772455	1008644088	1684675964	6773840667	6773840667	x9/a0		
x10/a0	13431	17814	371914	15731	158287	18899	596076	18899	596076	x10/a0	233949	1060568609	2218179	3437994463	2811488742	16700891771	16700891771	16700891771	x10/a0		
x11/a1	6930	9380	178105	8693	73509	10088	286705	10088	286705	x11/a1	1845985	401981231	1280316	2211394593	1414674649	2969735360	7000973954	7000973954	x11/a1		
x12/a2	6918	9339	157010	8806	73509	10088	286705	10088	286705	x12/a2	2307888	973621497	1494411	2026670718	1145194695	384313772	7892426981	7892426981	x12/a2		
x13/a3	9087	13512	188092	12270	40977	14907	279845	14907	279845	x13/a3	1796443	5409101349	2373021	2228852444	1610981322	766923217	16947246096	16947246096	x13/a3		
x14/a4	14483	25269	391686	18218	76030	22284	547970	22284	547970	x14/a4	47289052	23697520218	3533709	5162987579	2679439841	13743375938	45334146337	45334146337	x14/a4		
x15/a5	27659	57068	758980	34243	192456	40276	1110682	40276	1110682	x15/a5	96587179	70768342550	6781474	7858201177	4196188034	20213596008	103144E+11	103144E+11	x15/a5		
x16/a6	2302	2841	22256	2776	8886	3311	42372	3311	42372	x16/a6	340787	19232008	814210	267229624	433003791	1245112456	1965742776	1965742776	x16/a6		
x17/a7	1893	2395	14345	2414	5860	2907	29814	2907	29814	x17/a7	142084	5697	362579	3405503471	326038866	813478122	454552819	454552819	x17/a7		
x18/a2	3667	5105	110545	4777	43091	5538	172727	5538	172727	x18/a2	265825	1291861367	899582	519382864	673338494	3307717856	4087087218	4087087218	x18/a2		
x19/a3	4198	4332	87226	31052	4902	14987	31052	4902	14987	x19/a3	261670	291002643	798674	869325759	527360313	1408968797	3097717856	3097717856	x19/a3		
x20/a4	2498	3055	65043	3002	22598	3646	99842	3646	99842	x20/a4	178543	309732441	597204	733050013	317665400	150545514	2866839115	2866839115	x20/a4		
x21/a5	2342	2951	53692	2970	17053	3541	82351	3541	82351	x21/a5	113318	123218	442392810	413717	1000103544	295170145	1099157121	2868339655	2868339655	x21/a5	
x22/a6	1986	2434	46731	2432	12519	2905	69007	2905	69007	x22/a6	114324	167	383275	351010949	241086676	1066188972	1658784363	1658784363	x22/a6		
x23/a7	1899	2550	41348	2548	11781	2805	62931	2805	62931	x23/a7	75251	191	294237	329881364	153466324	610020563	1102719930	1102719930	x23/a7		
x24/a8	1652	2100	35853	2077	10340	2430	54452	2430	54452	x24/a8	139478	130	199965	233438202	132348603	1042202578	1408329556	1408329556	x24/a8		
x29/a4	1975	2352	33712	2338	9440	2598	52415	2598	52415	x29/a4	198819	59	258820	553569058	171712521	646992246	1372749962	1372749962	x29/a4		
x26/a10	1901	2416	31438	2487	7604	2915	208499	2915	208499	x26/a10	208499	110	166282	617988328	232010	76985261	742883956	742883956	x26/a10		
x27/a11	1546	2162	29639	2184	7055	2633	45219	2633	45219	x27/a11	154361	109	166282	1944110530	92845261	1505513053	3542789596	3542789596	x27/a11		
x28/a3	856	1114	6033	1165	2543	1417	13128	1417	13128	x28/a3	112771	42	65112	746634836	39986303	990736264	1793535328	1793535328	x28/a3		
x29/a4	530	737	4611	765	1904	1003	9450	1003	9450	x29/a4	198819	59	258820	553569058	171712521	646992246	1372749962	1372749962	x29/a4		
x30/a5	376	490	3295	531	1176	635	5503	635	5503	x30/a5	42029	23	19135	405833358	61131591	302942719	769668855	769668855	x30/a5		
x31/a6	362	458	2802	466	893	564	5565	564	5565	x31/a6	53700	5	55655	1392889704	59913866	382710948	1835623788	1835623788	x31/a6		
Sum	164694	251281	4236463	204002	1394174	238790	6489404	238790	6489404	Sum	236021416	1,22499E+11	33849828	51083774709	27587433922	91791402497	2,9323E+11	2,9323E+11	Sum		
Static										Dynamic										Dynamic Hits	
Ranked hitlist										Ranked hitlist										Benchmark	
Benchmark	sort	grip	602.gcc.s	605.mcf.s	620.omnetpp.s	631.deeppjeng.s	Average			Benchmark	sort	grip	602.gcc.s*	605.mcf.s*	620.omnetpp.s*	631.deeppjeng.s*	Average			Benchmark	
1	x15/a5	16.79%	x15/a5	23.71%	x15/a5	17.92%	x15/a5	16.79%	x15/a5	1	x15/a5	40.92%	x15/a5	57.77%	x15/a5	20.03%	x15/a5	15.38%	x15/a5	22.02%	1
2	x0/zero	12.16%	x0/zero	11.50%	x0/zero	13.24%	x0/zero	12.20%	x2/sp	2	x8/ld/tp	21.43%	x14/a4	19.35%	x14/a4	10.11%	x2/sp	14.97%	x14/a4	15.46%	2
3	x14/a4	8.79%	x14/a4	10.06%	x14/a4	9.25%	x14/a4	8.93%	x10/a0	3	x14/a4	20.04%	x8/ld/tp	5.53%	x2/sp	9.11%	x10/a0	10.19%	x10/a0	5.78%	3
4	x10/a0	8.16%	x10/a0	7.09%	x10/a0	8.78%	x10/a0	9.11%	x10/a0	4	x13/a3	7.59%	x13/a3	4.42%	x0/zero	6.73%	x14/a4	9.71%	x13/a3	8.36%	4
5	x2/sp	8.11%	x8/ld/tp	6.98%	x1/a	6.56%	x2/sp	7.48%	x1/a	5	x2/sp	2.72%	x0/zero	3.07%	x13/a3	7.01%	x17/a7	6.67%	x0/zero	8.17%	5
6	x8/ld/tp	5.84%	x2/sp	6.77%	x2/sp	6.80%	x13/a3	6.01%	x8/ld/tp	6	x0/zero	1.90%	x9/a1	2.56%	x10/a0	6.55%	x8/ld/tp	6.53%	x13/a3	5.87%	6
7	x13/a3	5.52%	x13/a3	5.38%	x8/ld/tp	4.90%	x8/ld/tp	5.45%	x8/ld/tp	7	x1/a	1.31%	x2/sp	2.51%	x8/ld/tp	4.89%	x13/a3	4.36%	x8/ld/tp	4.19%	7
8	x11/a1	4.21%	x11/a1	3.73%	x13/a3	4.46%	x12/a2	4.32%	x11/a1	8	x10/a0	0.99%	x18/a2	1.05%	x12/a2	4.41%	x13/a1	4.33%	x1/a	5.25%	8
9	x12/a2	4.20%	x12/a2	3.72%	x11/a1	4.20%	x11/a1	4.20%	x11/a1	9	x12/a2	0.98%	x1/a	0.89%	x1/a	3.85%	x0/a1	3.99%	x11/a1	5.13%	9
10	x1/a	3.54%	x1/a	3.26%	x9/a1	3.74%	x9/a1	3.22%	x1/a	10	x11/a1	0.78%	x10/a0	0.87%	x11/a1	3.97%	x12/a2	4.15%	x8/ld/tp	2.53%	10
11	x9/a1	3.21%	x9/a1	2.84%	x12/a2	3.71%	x1/a	3.24%	x18/a2	11	x9/a1	0.21%	x12/a2	0.79%	x9/a1	3.42%	x27/a11	3.81%	x9/a1	3.66%	11
12	x18/a2	2.23%	x18/a2	2.03%	x18/a2	2.61%	x18/a2	2.34%	x13/a3	12	x16/a6	0.14%	x21/a5	0.36%	x18/a2	2.66%	x1/a	2.81%	x18/a2	2.44%	12
13	x18/a3	1.99%	x18/a3	1.72%	x18/a3	2.06%	x18/a3	2.23%	x18/a3	13	x18/a2	0.11%	x11/a1	0.13%	x16/a6	2.41%	x31/a6	2.73%	x19/a3	1.91%	13
14	x20/a4	1.52%	x20/a4	1.22%	x20/a4	1.54%	x20/a4	1.62%	x20/a4	14	x19/a3	0.11%	x20/a4	0.23%	x19/a3	2.36%	x5/ld	2.54%	x16/a6	1.64%	14
15	x16/a6	1.42%	x21/a5	1.18%	x21/a5	1.46%	x21/a5	1.27%	x21/a5	15	x26/a10	0.09%	x19/a3	0.24%	x20/a4	1.68%	x21/a5	2.02%	x17/a7	1.18%	15
16	x16/a6	1.40%	x16/a6	1.13%	x22/a6	1.10%	x16/a6	1.36%	x22/a6	16	x25/a9	0.08%	x16/a6	0.02%	x21/a5	1.22%	x9/a1	1.85%	x20/a4	1.57%	16
17	x22/a6	1.20%	x22/a6	1.01%	x23/a7	0.98%	x23/a7	1.25%	x23/a7	17	x20/a4	0.08%	x17/a7	0.00%	x22/a6	1.10%	x19/a3	1.70%	x21/a5	1.57%	17
18	x25/a9	1.21%	x23/a7	0.97%	x20/a4	0.85%	x26/a10	1.22%	x6/a1	18	x27/a11	0.07%	x14/a4	0.00%	x17/a7	1.07%	x28/a3	1.40%	x22/a6	1.16%	18
19	x26/a10	1.19%	x26/a10	1.09%	x24/a8	0.74%	x25/a9	1.23%	x25/a9	19	x24/a8	0.06%	x25/a9	0.00%	x27/a11	1.43%	x29/a4	1.47%	x24		