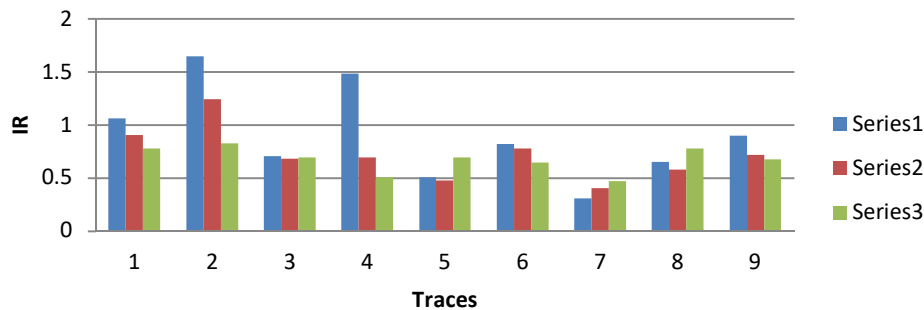


PROBLEM Rezultate urmate de grafice privind influenta ratei de fetch (FR) asupra ratei de procesare IR(FR) si asupra ratei de miss în cache-ul de instructiuni RmissIC(FR).

ISSUE RATE

	SORT	BUBBLE	MATRIX	PERM	PUZZLE	QUEEN	TOWER	TREE	MEDIE
FR=4	1.058	1.648	0.705	1.483	0.505	0.818	0.308	0.651	0.897
FR=8	0.904	1.242	0.678	0.692	0.474	0.777	0.401	0.578	0.71825
FR=16	0.776	0.825	0.69	0.507	0.691	0.644	0.469	0.776	0.67225

ISSUE RATE

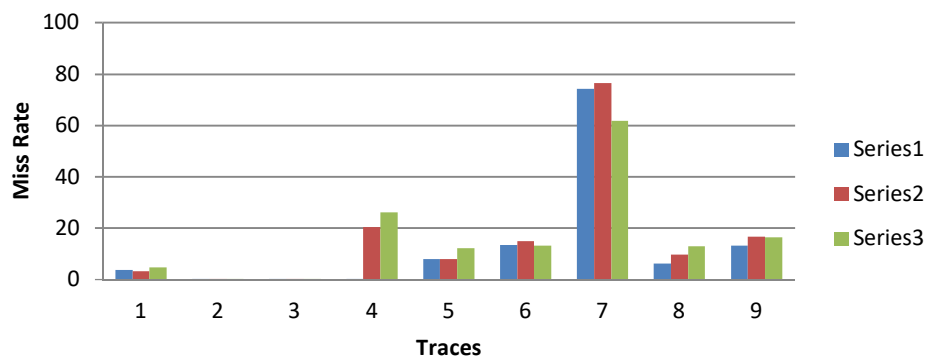


MISS RATE

	FSORT	FBUBL	MATRIX	PERM	PUZZLE	QUEEN	TOWER	TREE	MEDIE
FR=4	3.5	0.05	0.05	0.03	7.79	13.3	74.04	6.06	13.1025
FR=8	3.09	0.04	0.05	20.38	7.94	14.82	76.46	9.52	16.5375
FR=16	4.7	0.05	0.06	26.13	12	13.2	61.7	12.94	16.3475

Rata de miss in cacheul de instructiuni este cea mai mare in cazul trace-ului tower cand FR=8

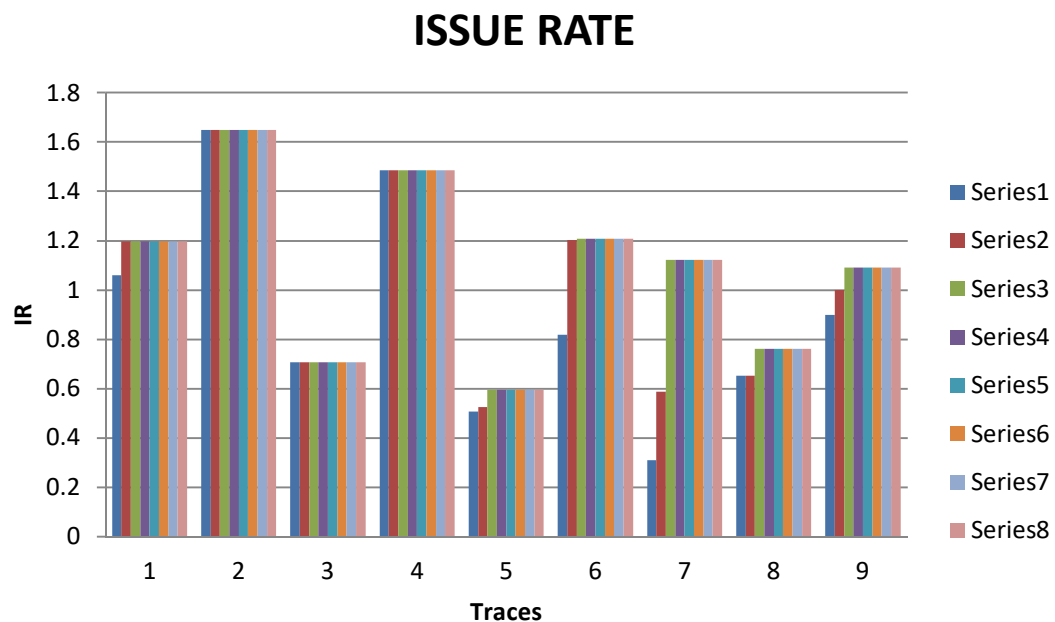
MISS RATE



PROBLEMA : Studiați influența capacității cache-ului de instrucțiuni asupra ratei de procesare $IR(SIZE_IC)$ și asupra ratei de miss la cache-ul de instrucțiuni $RmissIC(SIZE_IC)$.

	ISSUE RATE								
	FSORT	FBUBL	MATRIX	PERM	PUZZLE	QUEENS	TOWER	TREE	MEDIE
SIZE_IC=64	1.058	1.648	0.705	1.483	0.505	0.818	0.308	0.651	0.897
SIZE_IC=128	1.196	1.648	0.706	1.484	0.524	1.201	0.586	0.651	0.9995
SIZE_IC=256	1.196	1.648	0.706	1.484	0.595	1.207	1.12	0.759	1.08938
SIZE_IC=512	1.196	1.648	0.706	1.484	0.595	1.207	1.12	0.759	1.08938
SIZE_IC=1024	1.196	1.648	0.706	1.484	0.595	1.207	1.12	0.759	1.08938
SIZE_IC=2048	1.196	1.648	0.706	1.484	0.595	1.207	1.12	0.759	1.08938
SIZE_IC=4096	1.196	1.648	0.706	1.484	0.595	1.207	1.12	0.759	1.08938
SIZE_IC=8192	1.196	1.648	0.706	1.484	0.595	1.207	1.12	0.759	1.08938

Daca cache-ul de instructiuni este mai mic in cazul IC=64 si IC=128 se va obtine un issue rate mai mic. De la IC=256 in sus se vor obtine aceleasi performante.

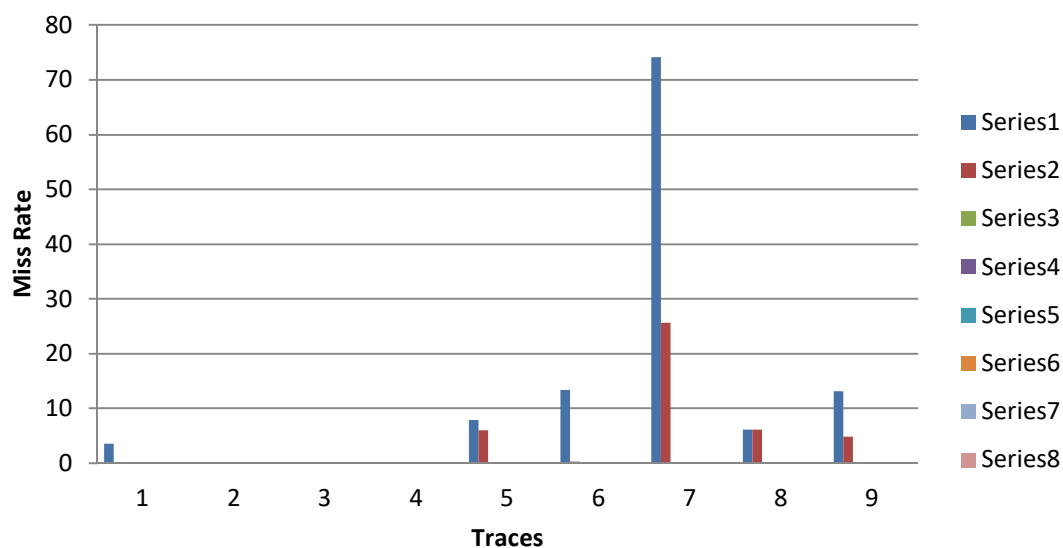


MISS RATE

	FSORT	FBUBL	MATRIX	PERM	PUZZLE	QUEEN	TOWER	TREE	MEDIE
SIZE_IC=64	3.5	0.05	0.05	0.03	7.79	13.3	74.04	6.06	13.1025
SIZE_IC=128	0.18	0.05	0.05	0.02	6	0.2	25.65	6.06	4.77625
SIZE_IC=256	0.17	0.05	0.05	0.02	0.05	0.07	0.08	0.1	0.07375
SIZE_IC=512	0.17	0.05	0.05	0.02	0.05	0.07	0.08	0.1	0.07375
SIZE_IC=1024	0.17	0.05	0.05	0.02	0.05	0.07	0.08	0.1	0.07375
SIZE_IC=2048	0.17	0.05	0.05	0.02	0.05	0.07	0.08	0.1	0.07375
SIZE_IC=4096	0.17	0.05	0.05	0.02	0.05	0.07	0.08	0.1	0.07375
SIZE_IC=8192	0.17	0.05	0.05	0.02	0.05	0.07	0.08	0.1	0.07375

Rata de miss creste in cazul in care dimensiunea cacheului de instructiuni este de 64 si 128.

MISS RATE



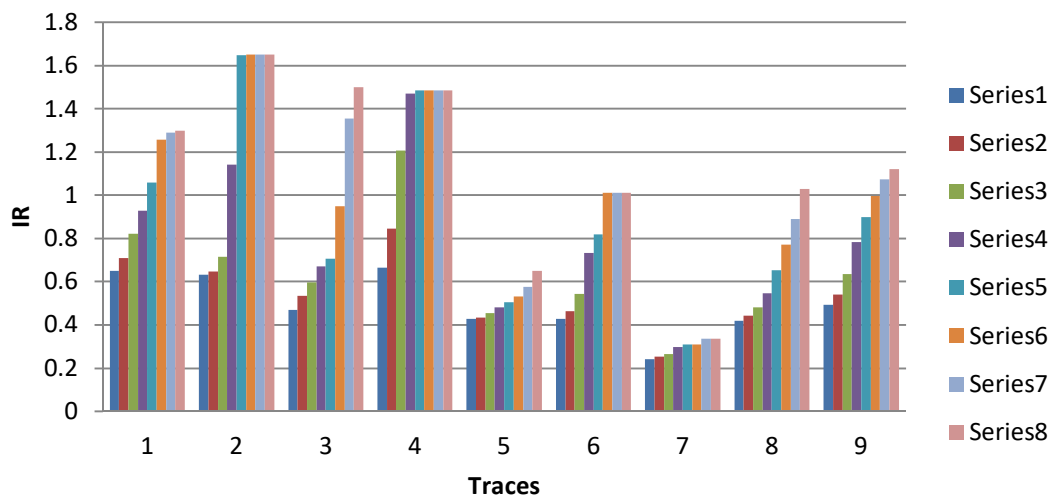
PROBLEM/ Studiati influenta capacitatii cache-ului de date asupra ratei de procesare IR(SIZE_DC) si asupra ratei de miss la cache-ul de date RmissDC(SIZE_DC).

	FSORT	FBUBL	MATRIX	PERM	PUZZLE	QUEENST	TOWER	TREE	MEDIE
SIZE_DC=64	0.648	0.632	0.468	0.664	0.428	0.428	0.241	0.419	0.491
SIZE_DC=128	0.707	0.647	0.532	0.845	0.433	0.462	0.252	0.44	0.5398
SIZE_DC=256	0.82	0.715	0.595	1.206	0.454	0.543	0.264	0.48	0.6346
SIZE_DC=512	0.928	1.139	0.67	1.468	0.481	0.733	0.297	0.546	0.7828
SIZE_DC=1024	1.058	1.648	0.705	1.483	0.505	0.818	0.308	0.651	0.897
SIZE_DC=2048	1.257	1.649	0.948	1.483	0.529	1.009	0.308	0.77	0.9941
SIZE_DC=4096	1.288	1.649	1.354	1.483	0.576	1.009	0.334	0.888	1.0726
SIZE_DC=8192	1.297	1.649	1.5	1.483	0.649	1.009	0.334	1.027	1.1185

Pe masura ce creste dimensiunea cache-ului de creste si IR

In cazul cache-ului de instructiuni daca cresteam dimensiunea cache-ului mai mult de 256 Ir ramanea la fel

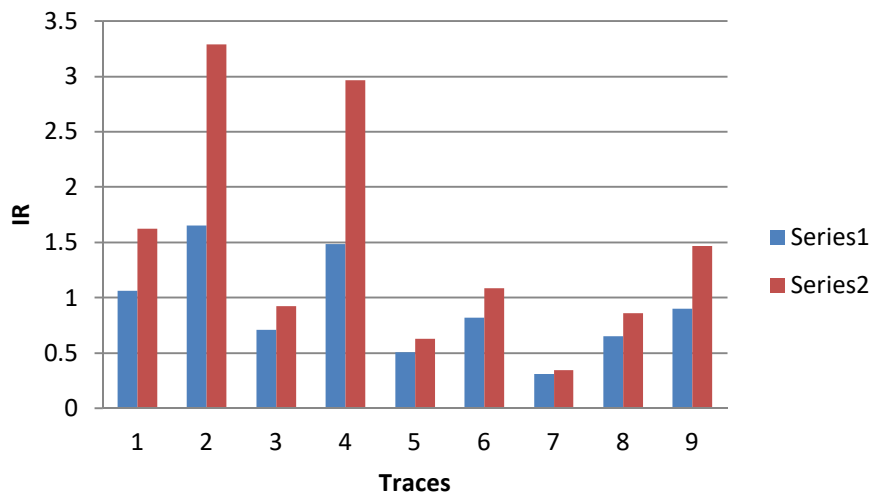
Issue Rate



	FSORT	FBUBL	MATRIX	PERM	PUZZLE	QUEENST	TOWER	TREE	MEDIE
SIZE_DC=64	3.5	0.05	0.05	0.03	7.79	13.3	74.04	6.06	13.103
SIZE_DC=128	3.5	0.05	0.05	0.03	7.79	13.3	74.04	6.06	13.103
SIZE_DC=256	3.5	0.05	0.05	0.03	7.79	13.3	74.04	6.06	13.103
SIZE_DC=512	3.5	0.05	0.05	0.03	7.79	13.3	74.04	6.06	13.103
SIZE_DC=1024	3.5	0.05	0.05	0.03	7.79	13.3	74.04	6.06	13.103
SIZE_DC=2048	3.5	0.05	0.05	0.03	7.79	13.3	74.04	6.06	13.103
SIZE_DC=4096	3.5	0.05	0.05	0.03	7.79	13.3	74.04	6.06	13.103
SIZE_DC=8192	3.5	0.05	0.05	0.03	7.79	13.3	74.04	6.06	13.103

PROBLE Determinati influenta numarului maxim de instructiuni ce pot
fi trimise simultan în executie asupra ratei de procesare IR(IRmax).

	FSORT	FBUBL	MATRIX	PERM	PUZZLE	QUEEN	TOWER	TREE	MEDIE
ir=2	1.058	1.648	0.705	1.483	0.505	0.818	0.308	0.651	0.897
ir=4	1.621	3.285	0.922	2.962	0.627	1.081	0.341	0.856	1.46188



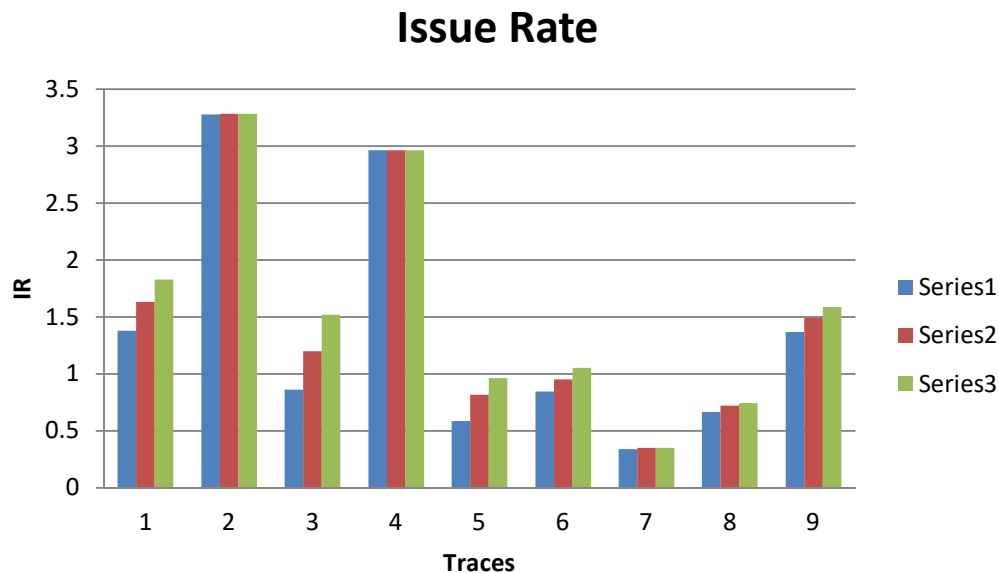
Se vor genera graficele IR(BLOC_SIZE) si RmissDC(BLOC_SIZE) în cele doua ipostaze:
scriere în cache prin write back si scriere în cache prin write through.

WRITE BACK

IR

	FSORT	FBUBL	MATRIX	PERM	PUZZLE	QUEENS	TOWER	TREE	MEDIE
BLOC_SIZE=4	1.379	3.28	0.861	2.963	0.586	0.844	0.336	0.665	1.36425
BLOC_SIZE=8	1.631	3.282	1.199	2.962	0.813	0.952	0.35	0.72	1.48863
BLOC_SIZE=16	1.828	3.284	1.517	2.962	0.962	1.051	0.346	0.743	1.58663

Daca crestem bloc size-ul obtinem Ir mai mare
cele mai bune performante se obtin in cazul trace-urilor fsort, matrix, puzzle si queens
in rest chiar daca crestem dimensiunea blocului nu obtinem Ir mai mare

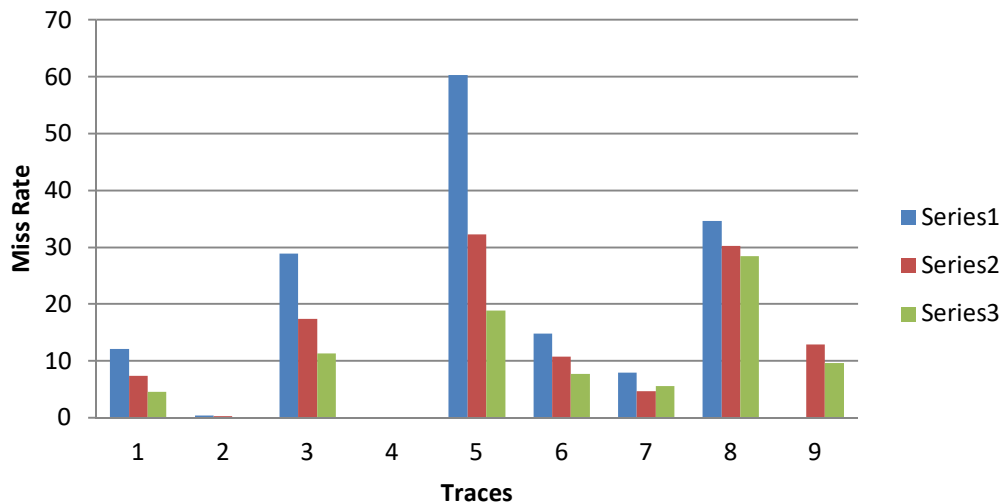


DC MISS

	FSORT	FBUBL	MATRIX	PERM	PUZZLE	QUEENS	TOWER	TREE	MEDIE
BLOC_SIZE=4	12.1	0.36	28.84	0.04	60.21	14.75	7.93	34.54	
BLOC_SIZE=8	7.29	0.19	17.39	0.02	32.16	10.68	4.63	30.14	12.8125
BLOC_SIZE=16	4.46	0.1	11.31	0.01	18.81	7.71	5.55	28.36	9.53875

In cazul cu write back daca creste dimensiunea blocului obtinem rata de miss mai mica
 Cu cat bloc size-ul este mai mic rata de miss este mai mare.

Miss Rate

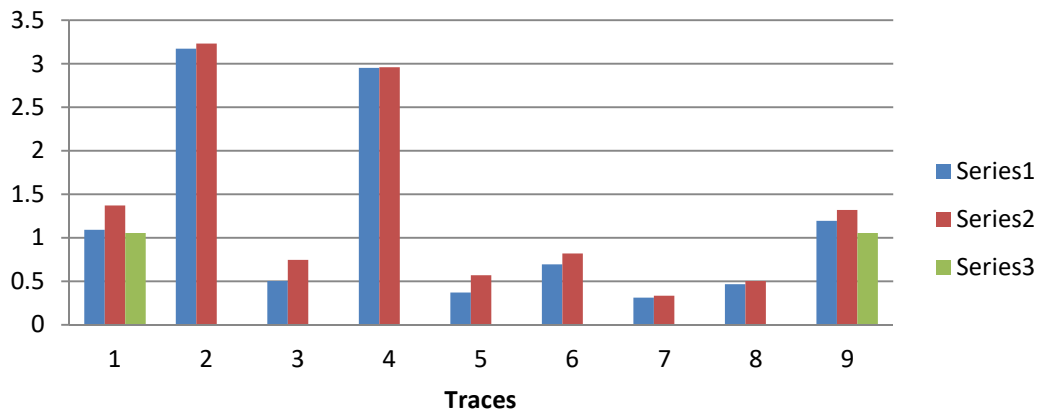


WRITE THROUGH

IR

	FSORT	FBUBL	MATRIX	PERM	PUZZLE	QUEENS	TOWER	TREE	MEDIE
BLOC_SIZE=4	1.086	3.174	0.502	2.95	0.369	0.692	0.307	0.466	1.19325
BLOC_SIZE=8	1.37	3.227	0.746	2.955	0.568	0.814	0.331	0.502	1.31413
BLOC_SIZE=16	1.056								1.056

La write through cele mai bune performante ale IR sunt in cazul dimensiunii blocului de 8
 Se obtine performanta mai buna la Bloc_size=8 decat in cazul bloc_size=16.



DC MISS

	FSORT	FBUBL	MATRIX	PERM	PUZZLE	QUEENS	TOWER	TREE	MEDIE
BLOC_SIZE=4	12.1	0.36	28.84	0.04	60.21	14.75	7.93	34.54	19.8463
BLOC_SIZE=8	7.29	0.19	17.39	0.02	32.16	10.68	4.63	30.14	12.8125
BLOC_SIZE=16	4.46								4.46

In cazul write through, rata de miss creste cand marimea blocului=4
Daca crestem marimea blocului rata de miss scade
La marimea blocului=16 obtinem cea mai mica rata de miss

