

Speed&Compression Report

GSoC FFV1 p frames project

Xiph Sequences

Sequence	Size, bytes	Resolution	FPS
akiyo_cif.y4m	45 621 044	352x288	29,97
bus_cif.y4m	22 810 538	352x288	30,00
coastguard_cif.y4m	45 621 044	352x288	29,97
football_cif.y4m	39 538 238	352x288	30,00
foreman_cif.y4m	45 621 044	352x288	29,97
mobile_cif.y4m	45 621 054	352x288	29,97
mother_daughter_cif.y4m	45 621 044	352x288	29,97
news_cif.y4m	45 621 044	352x288	29,97
silent_cif.y4m	45 621 044	352x288	29,97
waterfall_cif.y4m	39 538 244	352x288	29,97

The OBMC code from the snow encoder was translated into separate ObmcContext. The motion estimation part now interacts with bitstream encoder through callbacks. The next table shows that there is no dramatic changes in Encoding time*.

Preset: `ffmpeg -i %INPUT_FILE% -vcodec snow -refs 3 -me_method iter -dia_size 2 -cmp 12 -subcmp 12 -y %TARGET_FILE%`

Snow Encoder

Sequence	Snow Encoder [stable version]		Snow Encoder [new version]	
	Encoding time*, sec	Compression ratio, %	Encoding time*, sec	Compression ratio, %
akiyo_cif.y4m	95,87	0,010710	94,67	0,010710
bus_cif.y4m	52,03	0,009439	53,00	0,009439
coastguard_cif.y4m	125,21	0,007631	124,74	0,007631
football_cif.y4m	96,44	0,007497	98,05	0,007497
foreman_cif.y4m	121,14	0,008106	122,78	0,008106
mobile_cif.y4m	107,87	0,009051	108,05	0,009051
mother_daughter_cif.y4m	147,05	0,013007	145,76	0,013007
news_cif.y4m	95,67	0,012249	95,92	0,012249
silent_cif.y4m	93,09	0,010400	92,14	0,010400
waterfall_cif.y4m	84,60	0,016597	83,39	0,016597

The next presets of FFV1 was used during encoder launches:

FFV1 versions and presets

Abbrev.	Preset
FFV1-stable	<code>ffmpeg -i %INPUT_FILE% -vcodec ffv1 -level 3 -coder 1 -context 1 -g 5 -y %TARGET_FILE%</code>
FFV1-P+OBMC	<code>ffmpeg -i %INPUT_FILE% -vcodec ffv1 -level 3 -coder 1 -pframe 1 -context 1 -g 5 -y %TARGET_FILE%</code>
FFV1-P+OBMC+ITER	<code>ffmpeg -i %INPUT_FILE% -vcodec ffv1 -level 3 -coder 1 -pframe 1 -me_method iter -context 1 -g 5 -y %TARGET_FILE%</code>
FFV1-P+NONOBMC	<code>ffmpeg -i %INPUT_FILE% -vcodec ffv1 -level 3 -coder 1 -pframe 1 -context 1 -g 5 -y %TARGET_FILE%</code>
FFV1-P+NONOBMC+ITER	<code>ffmpeg -i %INPUT_FILE% -vcodec ffv1 -level 3 -coder 1 -pframe 1 -me_method iter -context 1 -g 5 -y %TARGET_FILE%</code>
FFV1-P+OBMC+ITER+QPEL	<code>ffmpeg -i %INPUT_FILE% -vcodec ffv1 -level 3 -coder 1 -pframe 1 -me_method iter -flags +qpel -context 1 -g 5 -y %TARGET_FILE%</code>

FFV1-P+OBMC+ITER+MV4	ffmpeg -i %INPUT_FILE% -vcodec ffv1 -level 3 -coder 1 -pframe 1 -me_method iter -flags +mv4 -context 1 -g 5 -y %TARGET_FILE%
FFV1-P+OBMC+ITER+QPEL+MV4	ffmpeg -i %INPUT_FILE% -vcodec ffv1 -level 3 -coder 1 -pframe 1 -me_method iter -flags +qpel +mv4 -context 1 -g 5 -y %TARGET_FILE%
FFV1-P+OBMC+ITER+QPEL+MV4+MSAD	ffmpeg -i %INPUT_FILE% -vcodec ffv1 -level 3 -coder 1 -pframe 1 -me_method iter -cmp msad -subcmp msad -flags +qpel+mv4 -context 1 -g 5 -y %TARGET_FILE%

Launches

akiyo_cif.y4m

Abbrev.	Encoding time*, sec	Encoded filesize, bytes	Compression ratio, %
FFV1-stable	0,4708	14 424 768	0,316187
FFV1-P+OBMC	1,4007	8 062 588	0,176730
FFV1-P+OBMC+ITER	4,9786	8 058 098	0,176631
FFV1-P+NONOBMC	1,4341	8 112 346	0,177820
FFV1-P+NONOBMC+ITER	4,3144	8 106 376	0,177689
FFV1-P+OBMC+ITER+QPEL	6,2593	8 020 986	0,175818
FFV1-P+OBMC+ITER+MV4	8,7214	8 053 044	0,176520
FFV1-P+OBMC+ITER+QPEL+MV4	11,4948	8 009 450	0,175565
FFV1-P+OBMC+ITER+QPEL+MV4+MSAD	17,8425	7 959 768	0,174476

bus_cif.y4m

Abbrev.	Encoding time*, sec	Encoded filesize, bytes	Compression ratio, %
FFV1-stable	0,3382	11 727 084	0,514108
FFV1-P+OBMC	0,9131	10 493 592	0,460033
FFV1-P+OBMC+ITER	4,7339	10 328 462	0,452793
FFV1-P+NONOBMC	0,9244	10 673 576	0,467923
FFV1-P+NONOBMC+ITER	3,1645	10 559 160	0,462907
FFV1-P+OBMC+ITER+QPEL	6,8564	10 172 164	0,445941
FFV1-P+OBMC+ITER+MV4	8,6447	10 271 262	0,450286
FFV1-P+OBMC+ITER+QPEL+MV4	12,7890	10 108 336	0,443143
FFV1-P+OBMC+ITER+QPEL+MV4+MSAD	20,7467	10 020 452	0,439290

coastguard_cif.y4m

Abbrev.	Encoding time*, sec	Encoded filesize, bytes	Compression ratio, %
FFV1-stable	0,6031	22 851 234	0,500892
FFV1-P+OBMC	1,7223	20 149 804	0,441678
FFV1-P+OBMC+ITER	8,7482	20 004 196	0,438486
FFV1-P+NONOBMC	1,7352	20 405 508	0,447283
FFV1-P+NONOBMC+ITER	5,7879	20 301 996	0,445014
FFV1-P+OBMC+ITER+QPEL	13,3723	19 785 890	0,433701
FFV1-P+OBMC+ITER+MV4	15,6381	19 954 756	0,437402
FFV1-P+OBMC+ITER+QPEL+MV4	24,0304	19 737 686	0,432644
FFV1-P+OBMC+ITER+QPEL+MV4+MSAD	39,3199	19 523 396	0,427947

football_cif.y4m

Abbrev.	Encoding time*, sec	Encoded filesize, bytes	Compression ratio, %
FFV1-stable	0,4835	17 272 100	0,436845
FFV1-P+OBMC	1,6200	16 778 770	0,424368
FFV1-P+OBMC+ITER	11,7386	16 509 676	0,417562
FFV1-P+NONOBMC	1,6004	17 418 184	0,440540
FFV1-P+NONOBMC+ITER	7,2847	17 267 212	0,436722
FFV1-P+OBMC+ITER+QPEL	19,3548	16 392 392	0,414596
FFV1-P+OBMC+ITER+MV4	20,1452	16 337 714	0,413213
FFV1-P+OBMC+ITER+QPEL+MV4	30,3135	16 240 660	0,410758
FFV1-P+OBMC+ITER+QPEL+MV4+MSAD	54,5566	16 149 250	0,408446

foreman_cif.y4m

Abbrev.	Encoding time*, sec	Encoded filesize, bytes	Compression ratio, %
FFV1-stable	0,5690	20 143 474	0,441539
FFV1-P+OBMC	1,7681	18 184 316	0,398595
FFV1-P+OBMC+ITER	10,7632	17 947 074	0,393395
FFV1-P+NONOBMC	1,7773	18 573 702	0,407130
FFV1-P+NONOBMC+ITER	6,8484	18 474 596	0,404958
FFV1-P+OBMC+ITER+QPEL	16,7045	17 741 224	0,388882
FFV1-P+OBMC+ITER+MV4	18,5620	17 842 546	0,391103
FFV1-P+OBMC+ITER+QPEL+MV4	27,9163	17 655 856	0,387011
FFV1-P+OBMC+ITER+QPEL+MV4+MSAD	47,4892	17 606 286	0,385925

mobile_cif.y4m

Abbrev.	Encoding time*, sec	Encoded filesize, bytes	Compression ratio, %
FFV1-stable	0,7322	29 702 326	0,651066
FFV1-P+OBMC	1,8194	23 995 848	0,525982
FFV1-P+OBMC+ITER	8,8907	23 517 020	0,515486
FFV1-P+NONOBMC	1,8405	24 311 370	0,532898
FFV1-P+NONOBMC+ITER	5,4648	24 271 360	0,532021
FFV1-P+OBMC+ITER+QPEL	11,9770	22 959 032	0,503255
FFV1-P+OBMC+ITER+MV4	14,7070	23 422 262	0,513409
FFV1-P+OBMC+ITER+QPEL+MV4	21,0020	22 841 018	0,500668
FFV1-P+OBMC+ITER+QPEL+MV4+MSAD	34,6794	22 787 624	0,499498

mother_daughter_cif.y4m

Abbrev.	Encoding time*, sec	Encoded filesize, bytes	Compression ratio, %
FFV1-stable	0,4627	14 572 762	0,319431
FFV1-P+OBMC	1,6341	13 688 710	0,300053
FFV1-P+OBMC+ITER	10,5247	13 465 858	0,295168
FFV1-P+NONOBMC	1,6655	13 931 676	0,305378
FFV1-P+NONOBMC+ITER	6,8779	13 897 892	0,304638
FFV1-P+OBMC+ITER+QPEL	14,5946	13 375 918	0,293196
FFV1-P+OBMC+ITER+MV4	17,7726	13 514 338	0,296230

FFV1-P+OBMC+ITER+QPEL+MV4	25,1060	13 429 052	0,294361
FFV1-P+OBMC+ITER+QPEL+MV4+MSAD	43,3036	13 326 906	0,292122

news_cif.y4m

Abbrev.	Encoding time*, sec	Encoded filesize, bytes	Compression ratio, %
FFV1-stable	0,5191	16 581 204	0,363455
FFV1-P+OBMC	1,5014	10 779 344	0,236280
FFV1-P+OBMC+ITER	6,4745	10 742 396	0,235470
FFV1-P+NONOBMC	1,5066	10 857 770	0,237999
FFV1-P+NONOBMC+ITER	4,9848	10 829 888	0,237388
FFV1-P+OBMC+ITER+QPEL	8,7748	10 704 948	0,234649
FFV1-P+OBMC+ITER+MV4	10,6136	10 618 946	0,232764
FFV1-P+OBMC+ITER+QPEL+MV4	14,3364	10 582 326	0,231962
FFV1-P+OBMC+ITER+QPEL+MV4+MSAD	23,2757	10 516 858	0,230526

silent_cif.y4m

Abbrev.	Encoding time*, sec	Encoded filesize, bytes	Compression ratio, %
FFV1-stable	0,5716	21 821 776	0,478327
FFV1-P+OBMC	1,5818	15 615 390	0,342285
FFV1-P+OBMC+ITER	6,8421	15 561 126	0,341095
FFV1-P+NONOBMC	1,5760	15 779 524	0,345883
FFV1-P+NONOBMC+ITER	5,1201	15 744 098	0,345106
FFV1-P+OBMC+ITER+QPEL	9,3332	15 495 542	0,339658
FFV1-P+OBMC+ITER+MV4	11,8441	15 457 502	0,338824
FFV1-P+OBMC+ITER+QPEL+MV4	16,3718	15 397 190	0,337502
FFV1-P+OBMC+ITER+QPEL+MV4+MSAD	27,1177	15 265 916	0,334624

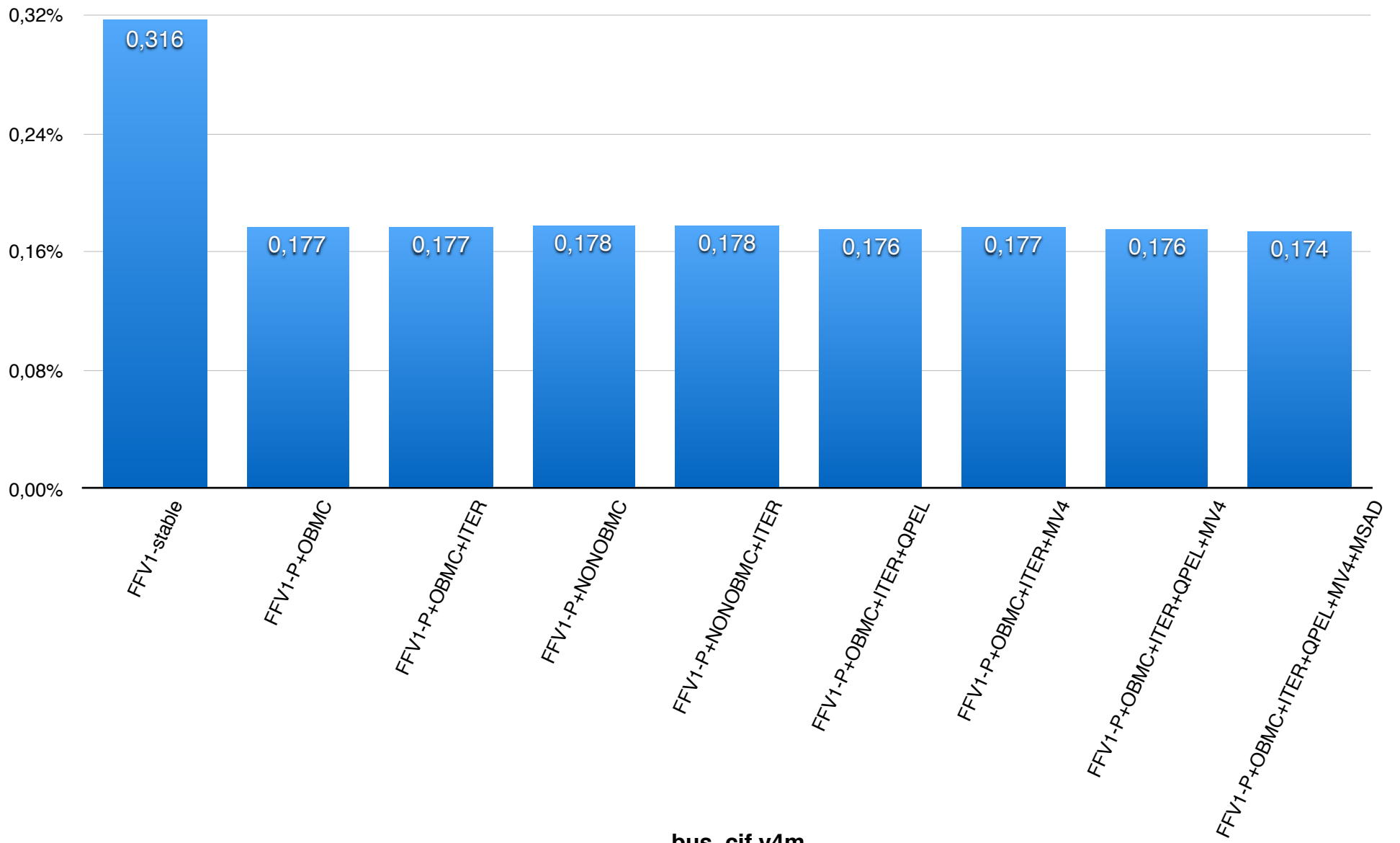
waterfall_cif.y4m

Abbrev.	Encoding time*, sec	Encoded filesize, bytes	Compression ratio, %
FFV1-stable	0,5750	23 674 510	0,598775
FFV1-P+OBMC	1,5722	17 631 228	0,386471
FFV1-P+OBMC+ITER	7,6175	17 231 468	0,377709
FFV1-P+NONOBMC	1,5026	17 904 818	0,392468
FFV1-P+NONOBMC+ITER	4,3306	17 893 330	0,392217
FFV1-P+OBMC+ITER+QPEL	9,5960	16 741 566	0,366970
FFV1-P+OBMC+ITER+MV4	12,1774	17 219 272	0,377441
FFV1-P+OBMC+ITER+QPEL+MV4	16,5992	16 714 090	0,366368
FFV1-P+OBMC+ITER+QPEL+MV4+MSAD	26,9829	16 656 744	0,365111

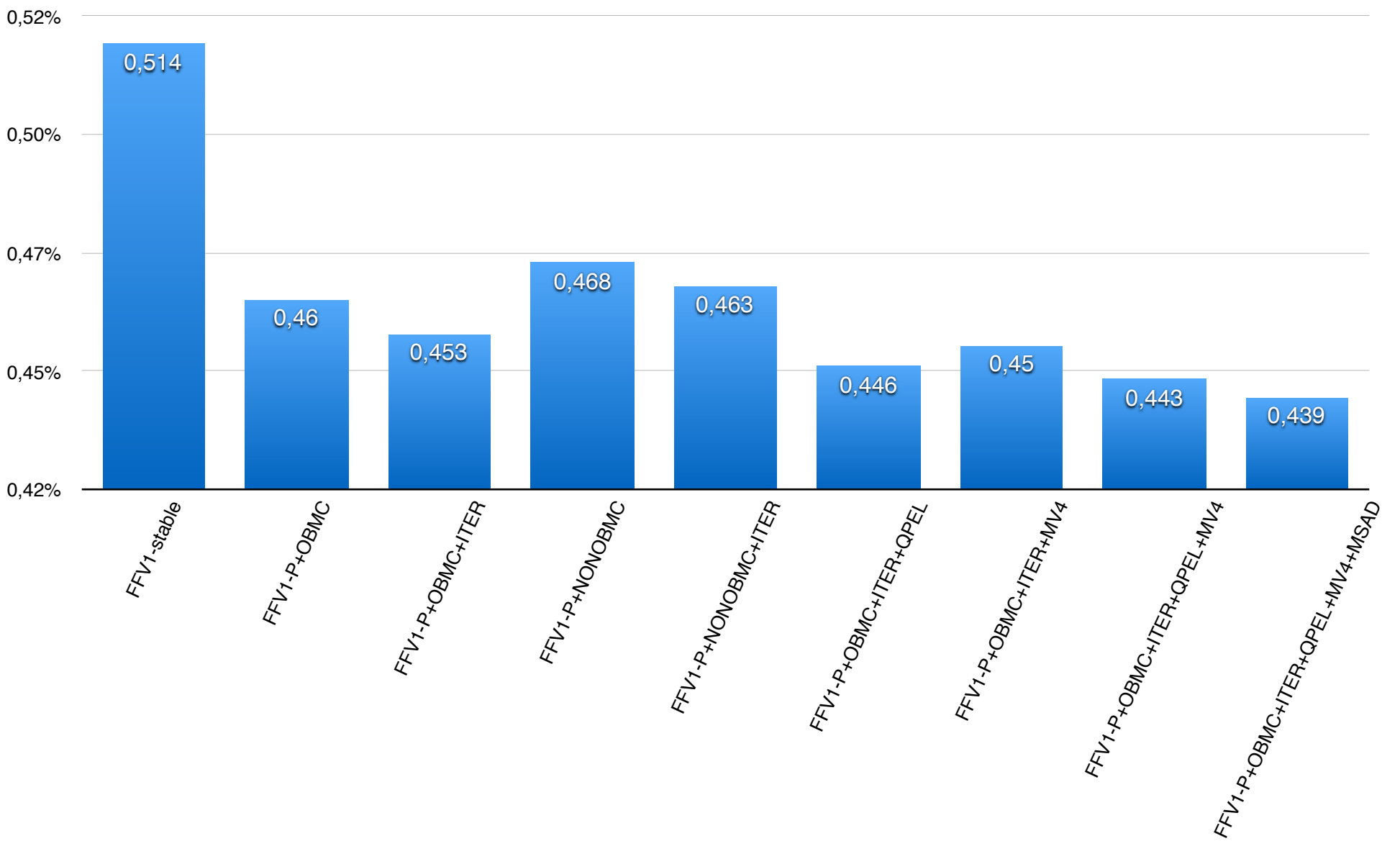
*All Encoding time values are mean values of 3 launches.

System configuration: OS X El Capitan, Macbook Pro 15" (late 2013), 2,3 GHz Intel Core i7, 16 GB 1600 MHz DDR3.

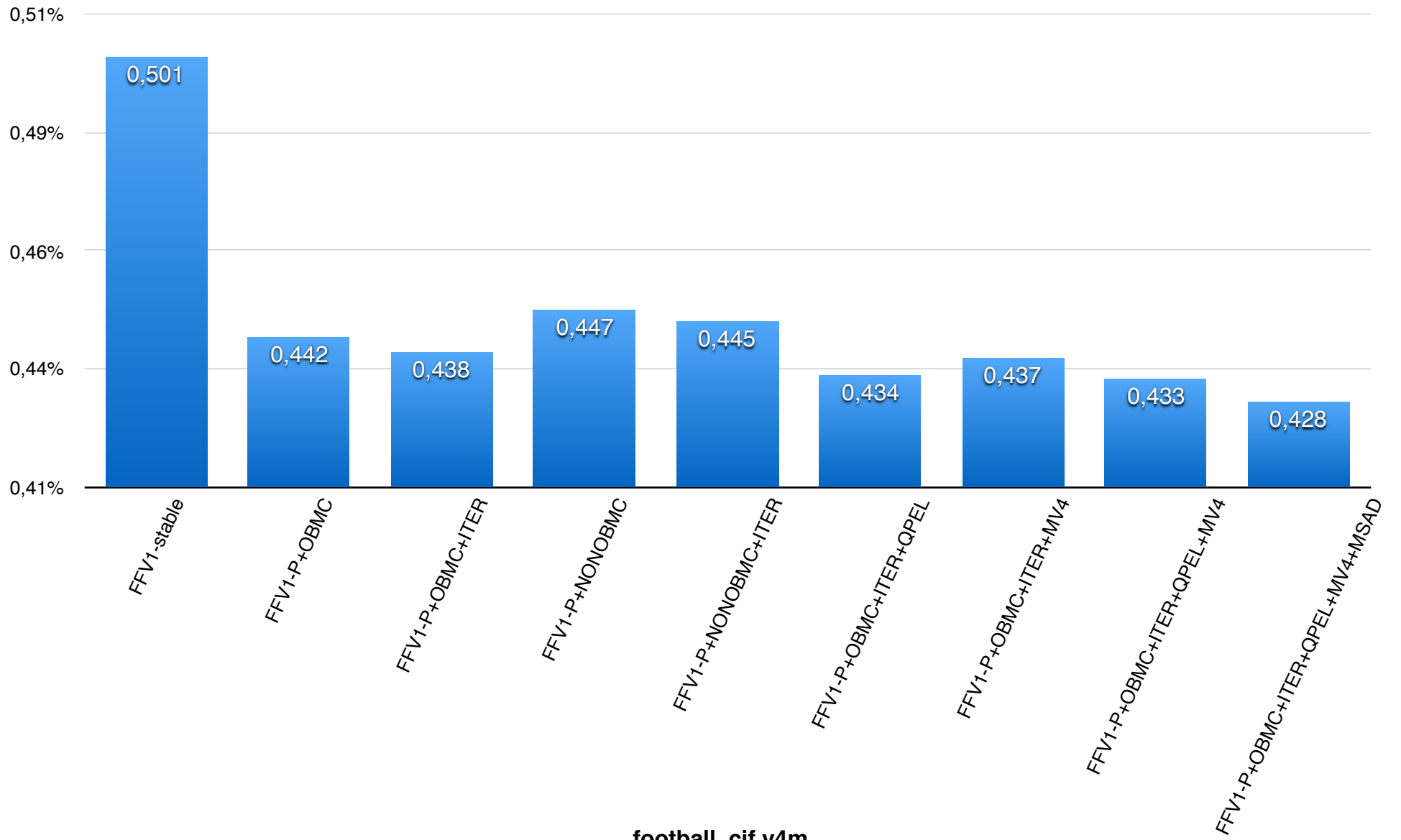
akiyo_cif.y4m



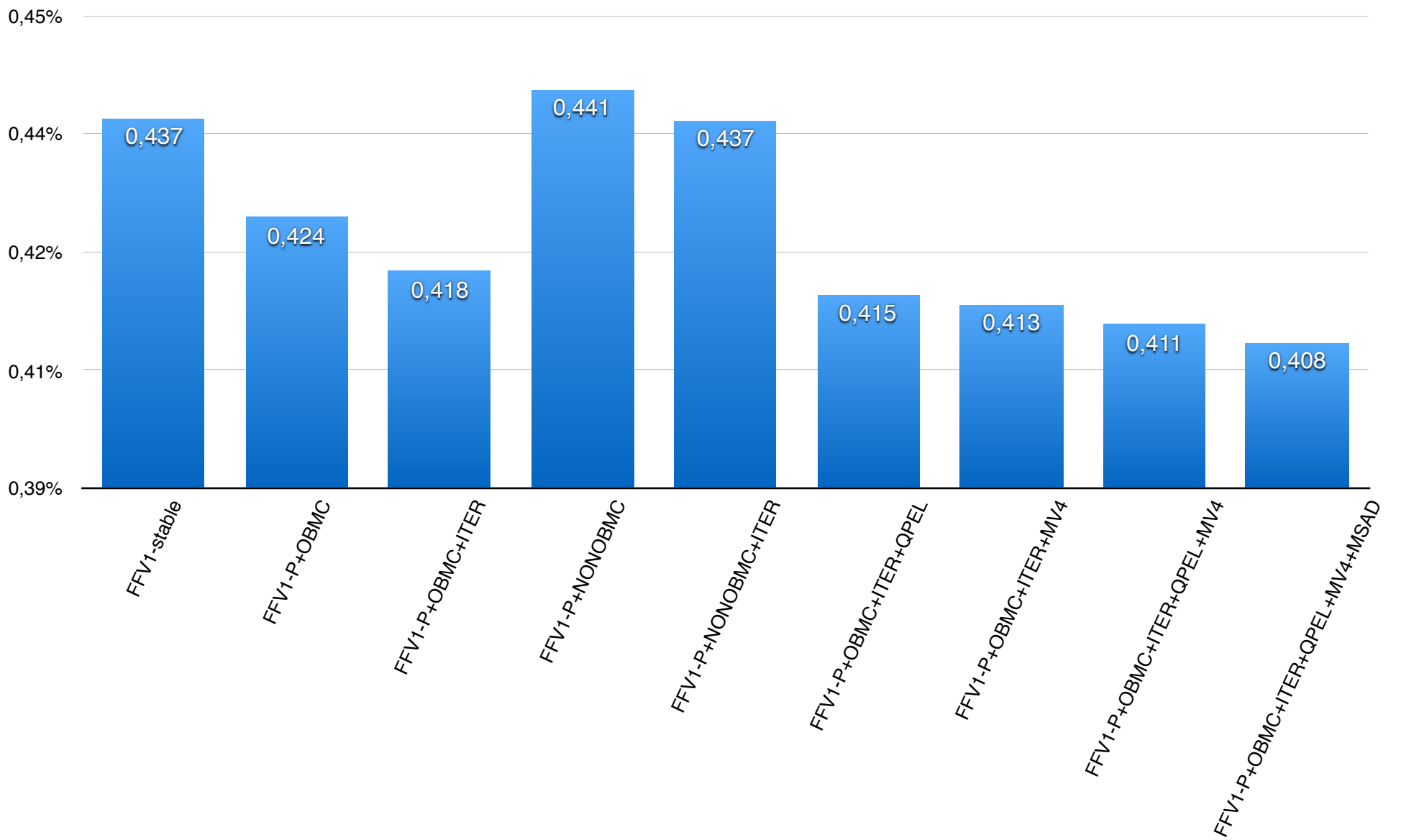
bus_cif.y4m



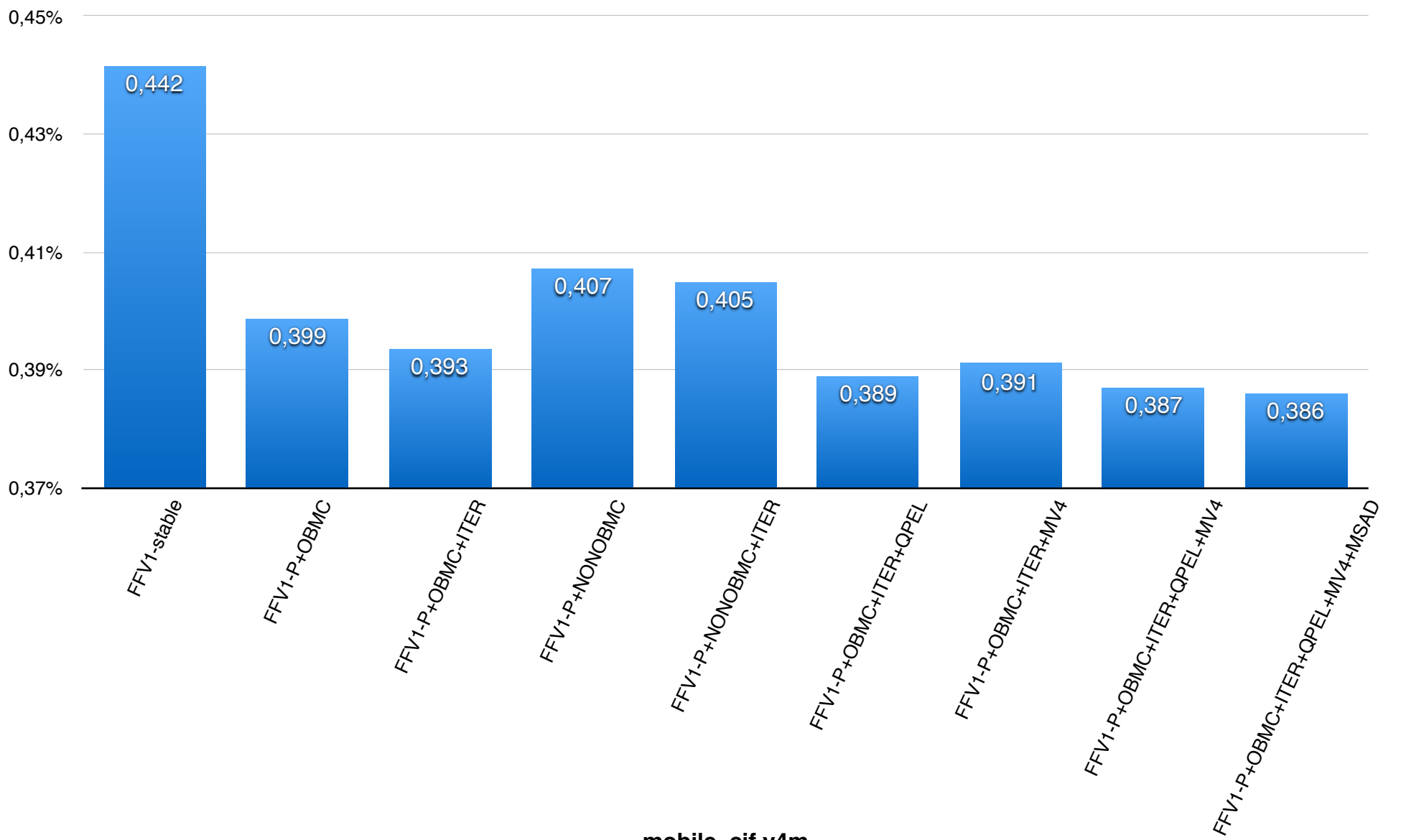
coastguard_cif.y4m



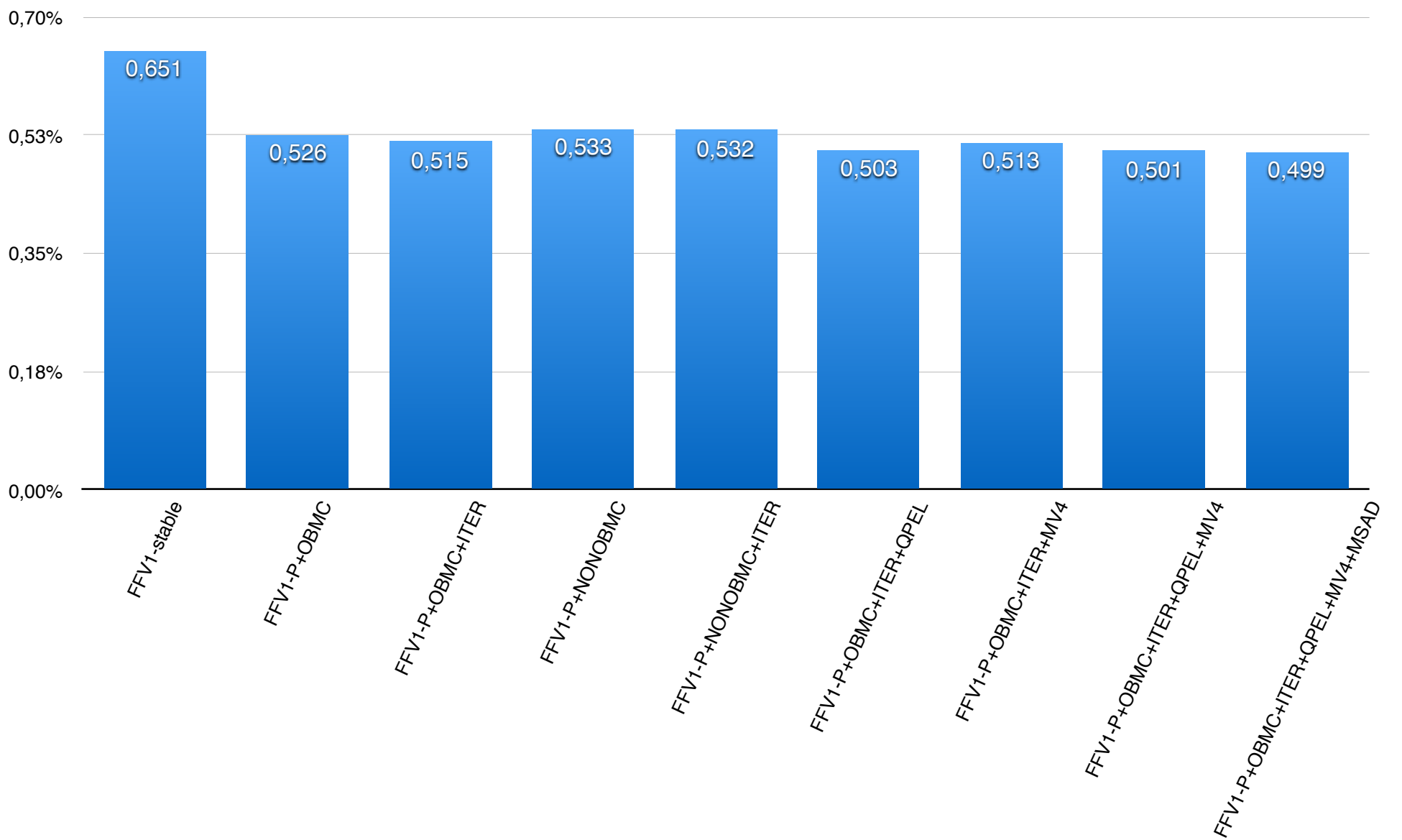
football_cif.y4m



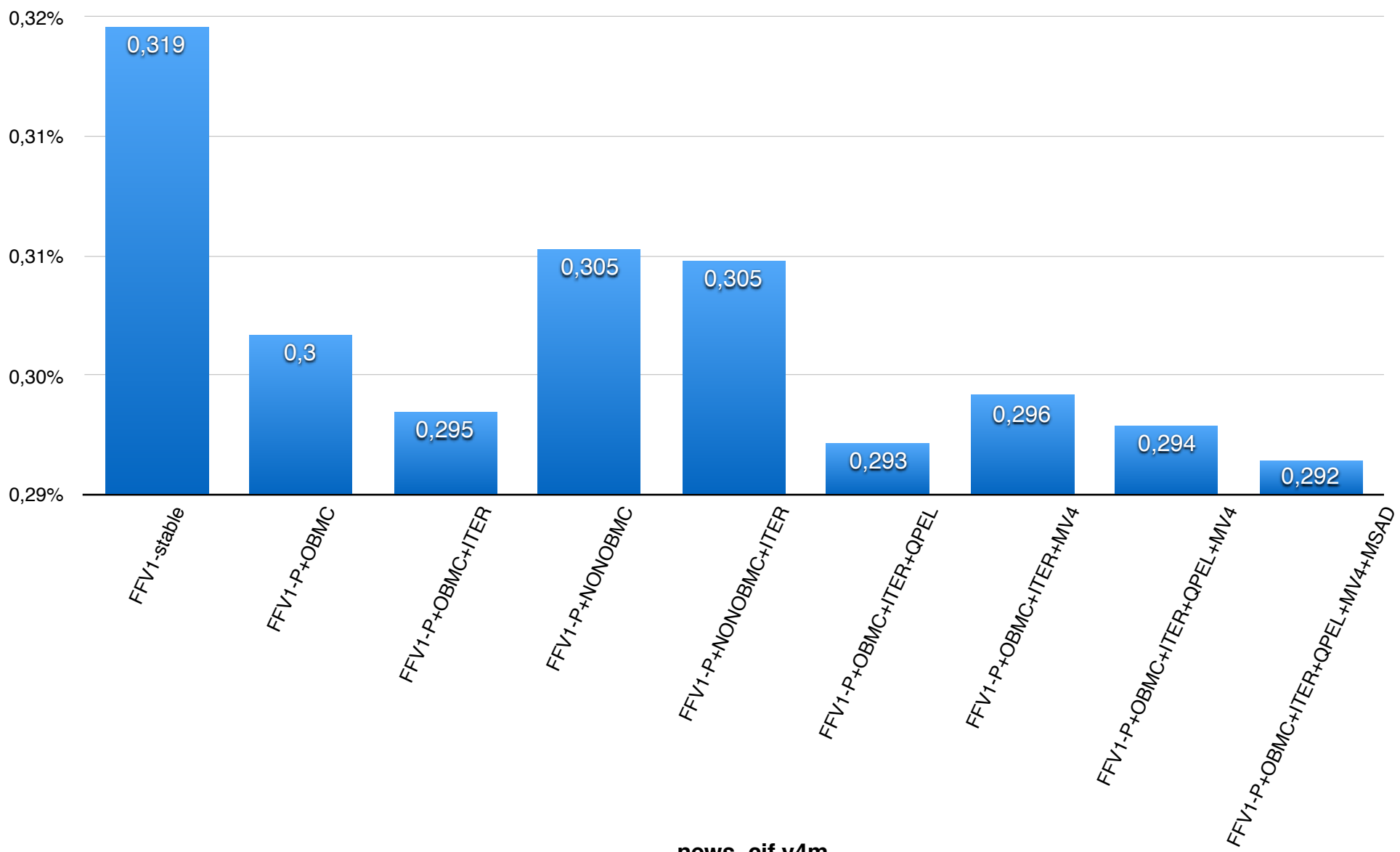
foreman_cif.y4m



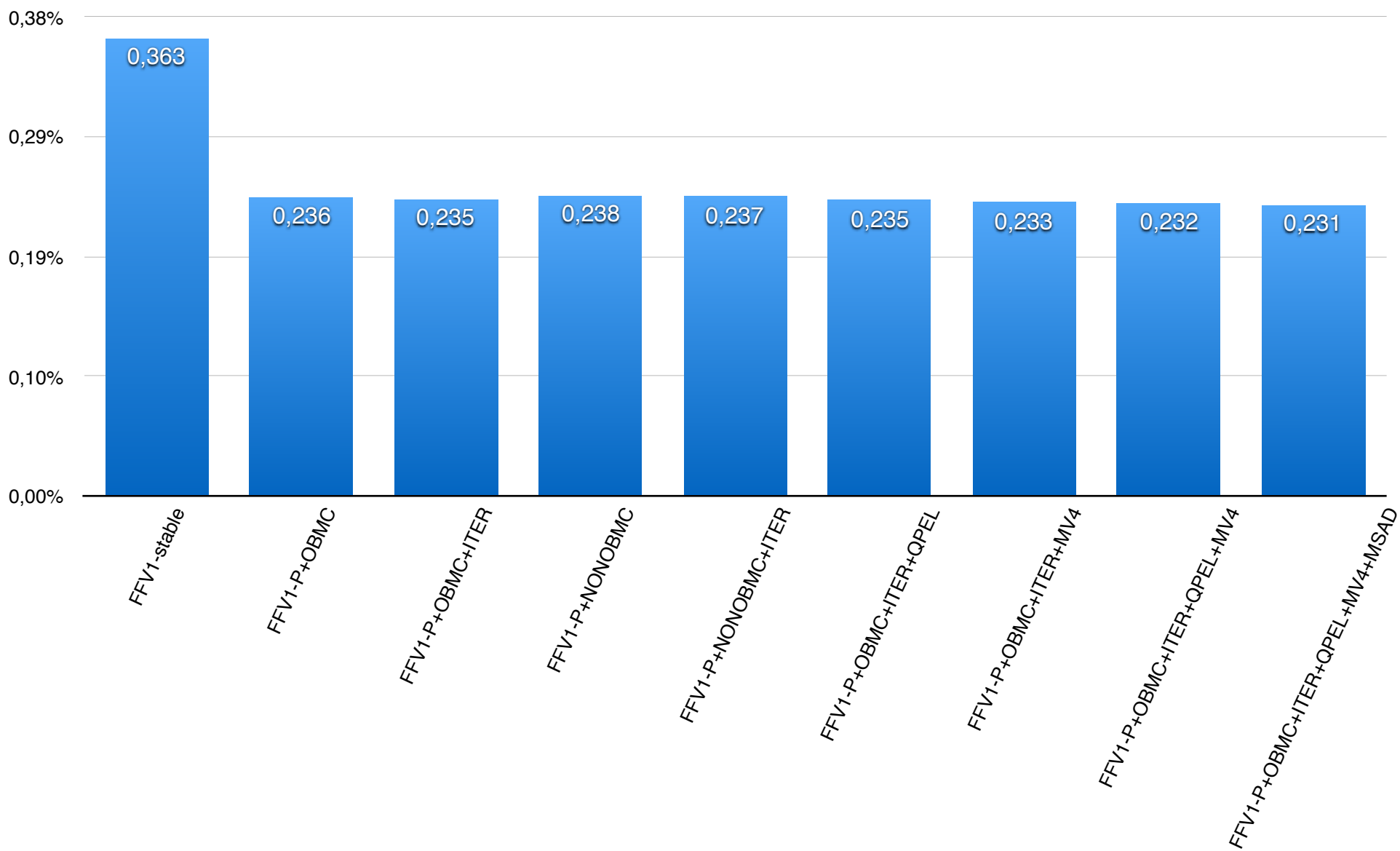
mobile_cif.y4m



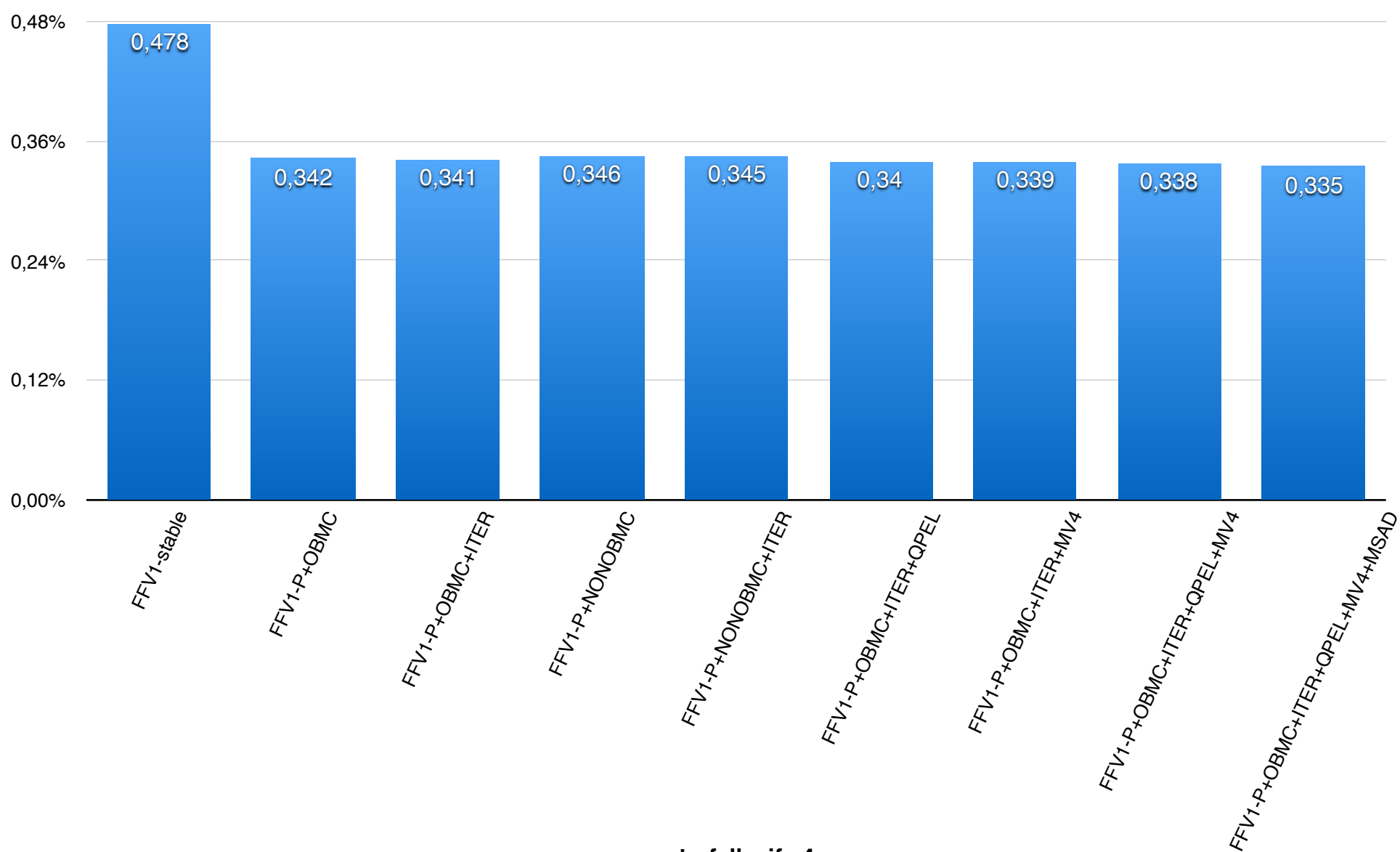
mother_daughter_cif.y4m



news_cif.y4m



silent_cif.y4m



waterfall_cif.y4m

