33.6 Auxiliary Filter

The parallel auxiliary filter uses a simple CIC filter for decimation. The decimation rate is restricted to 16 or 32. This reduces the filter delay, so the auxiliary filter can be used to supervise the input signal and detect abnormal input values, such as overcurrent, earlier than the main filter chain.

Note: Limit checking using the parallel auxiliary filter at a low decimation rate produces results with a reduced resolution, but generates an alarm earlier than the threshold values are seen at the output of the regular filter chain.

Depending on the application, alarms can be generated either from the main filter chain or from the auxiliary filter. This is selected via register **FCFGAx (x=0-13)**.
For the functionality of the comparator, refer to **"Limit Checking" on Page 79**.

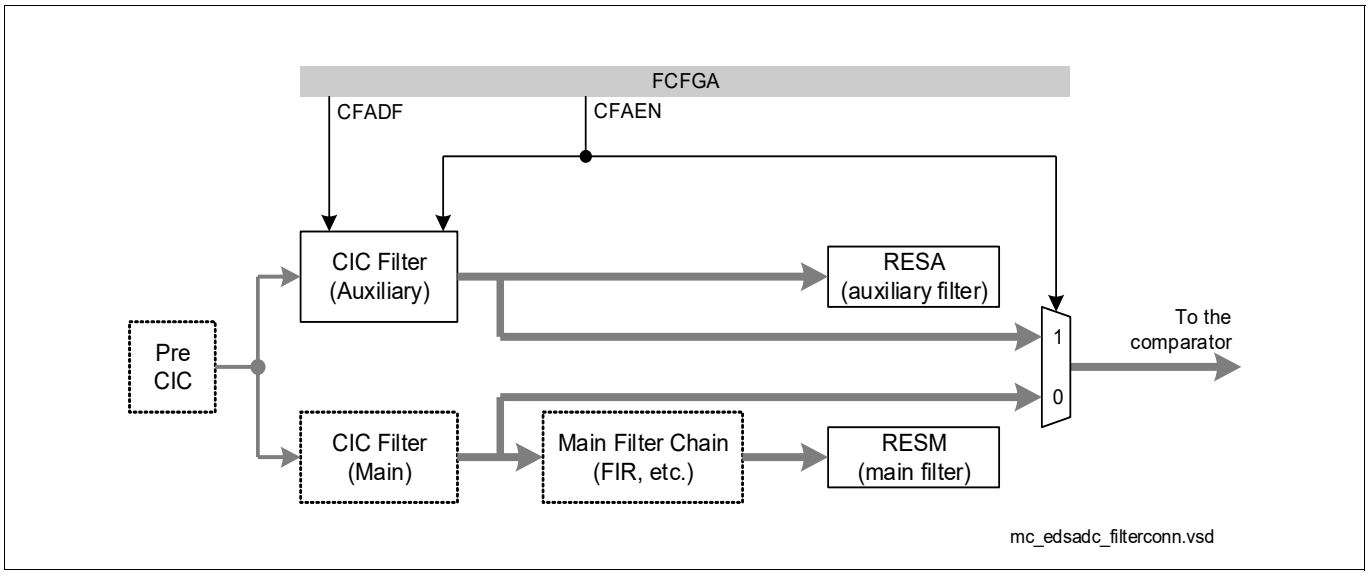

Figure 311 Connection of the Auxiliary Filter

Result Register x Auxiliary

RESAx (x=0-13)
Result Register x Auxiliary **(0180_H+x*100_H)** **Application Reset Value: 0000 0000_H**

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
0															
r															

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
RESULT															
rh															

Field	Bits	Type	Description
RESULT	15:0	rh	**Most Recent Result of Auxiliary Filter**
0	31:16	r	**Reserved, write 0, read as 0**

Auxiliary Filter Configuration Register x

FCFGAx (x=0-13)

Auxiliary Filter Configuration Register x **(0170_H+x*100_H)** **Application Reset Value: 0000 0000_H**

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
0											CFACNT				
r											rh				

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0														CFADF	CFAEN
r														rw	rw

Field	Bits	Type	Description
CFAEN	0	rw	**CIC Filter (Auxiliary) Enable** 0_B Off: Auxiliary filter is not active 1_B Auxiliary filter is active and generates results and alarm events
CFADF	1	rw	**CIC Filter (Auxiliary) Decimation Factor** 0_B OSR = 16 1_B OSR = 32
CFACNT	20:16	rh	**CIC Filter (Auxiliary) Decimation Counter** The decimation counter counts the filter cycles until an output is generated, i.e. the oversampling rate.
0	15:2, 31:21	r	**Reserved, write 0, read as 0**