Main Core (Assembly)	Invalidation	Monitoring Core
1: call malloc ;return pointer 0x12340000 in r1	1: rf_invalid[1] = false	1: rf_metadata[1] = (r1 << 32)   (r1 + 0xf) // = 0x123400001234000f
2: add r2, r1, #8	<pre>2: if (rf_invalid[1]) {     // drop monitoring     }     rf_invalid[2] = rf_invalid[1]</pre>	2: rf_metadata[2] = rf_metadata[1]
3a: mov r3, #1	<pre>3a: rf_invalid[3] = false</pre>	3a: rf_metadata[3] = NULL
3b: str r3, [r1, #12] ; store to 0x1234000c	<pre>3b: if (rf_invalid[1]    rf_invalid[3]) {     // drop monitoring     }     mem_invalid[r1 + 12] = rf_invalid[3]</pre>	3b: if (r1 + 12 < base(metadata[1])
4: str r3, [r2, #12] ; store to 0x12340014	4: if (rf_invalid[2]    rf_invalid[3]) {     // drop monitoring } mem_invalid[r2 + 12] = rf_invalid[3]	<pre>4: if (r2 + 12 &lt; base(metadata[2])   </pre>