

Microcode

Part A

cycle	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>WE</i>	<i>add/sub</i>	<i>+/- enable</i>	<i>right/left</i>	<i>shiftenable</i>
1	0	1	0	1	1	1	X	0
2	0	2	0	1	1	1	X	0
3	0	3	0	1	1	1	X	0
4	0	X	0	1	X	0	1	1
5	0	X	0	1	X	0	1	1

Part B

cycle	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>WE</i>	<i>add/sub</i>	<i>+/- enable</i>	<i>right/left</i>	<i>shiftenable</i>
1	1	3	1	1	1	1	X	0
2	1	X	1	1	X	0	1	1
3	2	0	2	1	0	1	X	0
4	2	X	2	1	X	0	0	1
5	2	X	2	1	X	0	0	1
6	1	2	0	1	1	1	X	0

Part C

cycle	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>RWE</i>	<i>add/sub</i>	<i>+ - en</i>	<i>mul/div</i>	<i>*/en</i>	<i>right/left</i>	<i>shiften</i>
1	1	X	1	1	X	0	X	0	0	1
2	0	1	1	1	1	1	X	0	X	0
3	2	X	2	1	X	0	X	0	1	1
4	2	X	2	1	X	0	X	0	1	1
5	1	2	1	1	X	0	1	1	X	0
6	3	0	0	1	0	1	X	0	X	0
7	1	0	0	1	X	0	0	1	X	0

Part D

cycle	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>RWE</i>	<i>add/sub</i>	<i>+ - en</i>	<i>mul/div</i>	<i>*/en</i>	<i>right/left</i>	<i>shiften</i>
1	1	0	0	1	1	1	X	0	X	0
2	0	0	0	1	X	0	1	1	X	0
3	2	0	2	1	X	0	0	1	X	0
4	1	X	0	1	X	0	X	0	0	1
5	1	0	1	1	1	1	X	0	X	0
6	3	1	1	1	0	1	X	0	X	0
7	1	2	0	1	X	0	1	1	X	0

Part E

cycle	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>RWE</i>	<i>add/sub</i>	<i>+ - en</i>	<i>mul/div</i>	<i>*/en</i>	<i>right/left</i>	<i>shiften</i>
1	2	X	0	1	X	0	X	0	0	1
4	0	2	0	1	1	1	X	0	X	0
2	0	X	0	1	X	0	X	0	0	1
3	0	X	0	1	X	0	X	0	0	1
5	1	0	0	1	0	1	X	0	X	0
6	0	0	0	1	X	0	1	1	X	0
7	0	3	0	1	X	0	0	1	X	0

Part F

cycle	X	Y	Z	RWE	add/sub	+ - en	mul/div	*/en	right/left	shiften
1	3	X	0	1	X	0	X	0	0	1
2	0	X	0	1	X	0	X	0	0	1
3	3	0	0	1	1	1	X	0	X	0

Part G

cycle	X	Y	Z	RWE	add/sub	+ - en	mul/div	*/en	right/left	shiften
1	1	2	1	1	1	1	X	0	X	0
2	1	2	2	1	0	1	X	0	X	0
3	1	2	1	1	0	1	X	0	X	0

Part H

cycle	X	Y	Z	RWE	add/sub	+ - en	mul/div	*/en	right/left	shiften
1	2	1	2	1	1	1	X	0	X	0
2	2	0	2	1	0	1	X	0	X	0
3	0	1	1	1	0	1	X	0	X	0
4	0	X	0	1	X	0	X	0	0	1
5	0	1	0	1	1	1	X	0	X	0
6	2	0	0	1	X	0	1	1	X	0
7	0	X	0	1	X	0	X	0	1	1

Part I

cycle	X	Y	Z	RWE	add/sub	+ - en	mul/div	*/en	right/left	shift en	description
1	3	2	2	1	0	0	0	1	0	0	$R_2 \leftarrow R_3/R_2$
2	2	0	2	1	0	0	0	0	0	1	$R_2 \leftarrow R_2 * 2$
3	1	0	1	1	0	0	0	0	1	1	$R_1 \leftarrow R_1/2$
4	1	0	1	1	0	0	0	0	1	1	$R_1 \leftarrow R_1/2$
5	2	1	1	1	1	1	0	0	0	0	$R_1 \leftarrow R_2 - R_1$
6	1	0	0	1	0	0	0	1	0	0	$R_0 \leftarrow R_1/R_0$

$$R_0 = \frac{2\frac{R_3}{R_2} + \frac{R_1}{4}}{R_0}$$

Part J

cycle	A	B	C	WE ₁	X	Y	Z	WE ₂
1	0	2	2	1	0	2	0	1
2	1	3	3	1	1	3	1	1
3	2	3	3	1	0	1	0	1
4	X	3	0	1	X	0	X	0