11.18   The set of difference equations in computable order is

$$u_2 := a_2\, x(n) + b_1\, v_3(n)$$
$$u_6 := a_3\, x(n) + a_4\, v_5(n) + b_2\, v_7(n) + b_3\, v_8(n)$$
$$y(n) := a_1\, x(n) + c_1 u_2 + c_2\, u_6$$
$$v_8(n) := v_7(n{-}1)$$
$$v_7(n) := u_6$$
$$v_3(n) := u_2$$
$$v_5(n) := x(n)$$

Hence, only three (Distributed arithmetic) units are needed. All units can work in parallel.

Unit	Inputs	Output	Number of terms	Number of words in the ROM
1	$x(n)$, $v_3(n)$	u_2	2	4
2	$x(n)$, $v_5(n)$, $v_7(n)$, $v_8(n)$	u_6	4	16
3	$x(n)$, u_2, u_6	$y(n)$	3	8