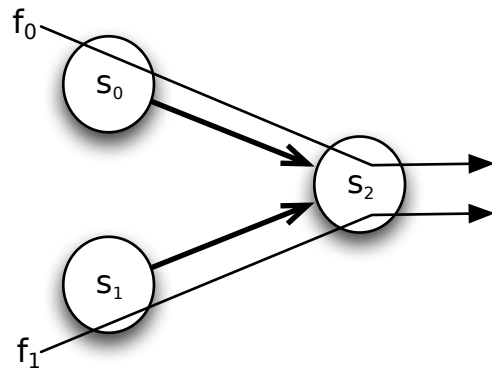


Tree_1SC_2Flows_1AC_2Paths



- $\beta_{s_0} = \beta_{s_1} = \beta_{s_2} = \beta_{R_{s_i}, T_{s_i}} = \beta_{20,20}, i \in \{0, 1, 2\}$
- $\mathcal{F} = \{f_0, f_1\}$
- $\alpha^{f_0} = \alpha^{f_1} = \gamma_{r^{f_j}, b^{f_j}} = \gamma_{5,25}, j \in \{0, 1\}$

arrivalBound($s_2, \{f_j\}, \mathcal{G}$), $\mathcal{G} = \mathcal{P}(\mathcal{F}) = \alpha_{s_2}^{f_j}, j \in \{0, 1\}$		FIFO_MUX	ARB_MUX
$\alpha_{s_2}^{f_j}$		$= \gamma_{5,25}$	
$\alpha_{s_2}^{xf_j}$		$= \gamma_{0,0}$	
$\beta_{s_2}^{1.o.f_j} = \beta_{s_2} \ominus \alpha_{s_2}^{xf_j} = \beta_{R_{s_2}^{1.o.f_j}, T_{s_2}^{1.o.f_j}}$	$=$	$= \beta_{20,20}$	
$\alpha_{s_2}^{f_j} = \alpha_{s_j}^{f_j} \oslash \beta_{s_j}^{1.o.f_j} = \gamma_{r_{s_2}^{f_j}, b_{s_2}^{f_j}}$	$r_{s_2}^{f_j}$	$= 5$	
	$b_{s_2}^{f_j}$	$\alpha_{s_j}^{f_j}(T_{s_j}^{1.o.f_j}) = 5 \cdot 20 + 25 = 125$	
	$=$	$= \gamma_{5,125}$	

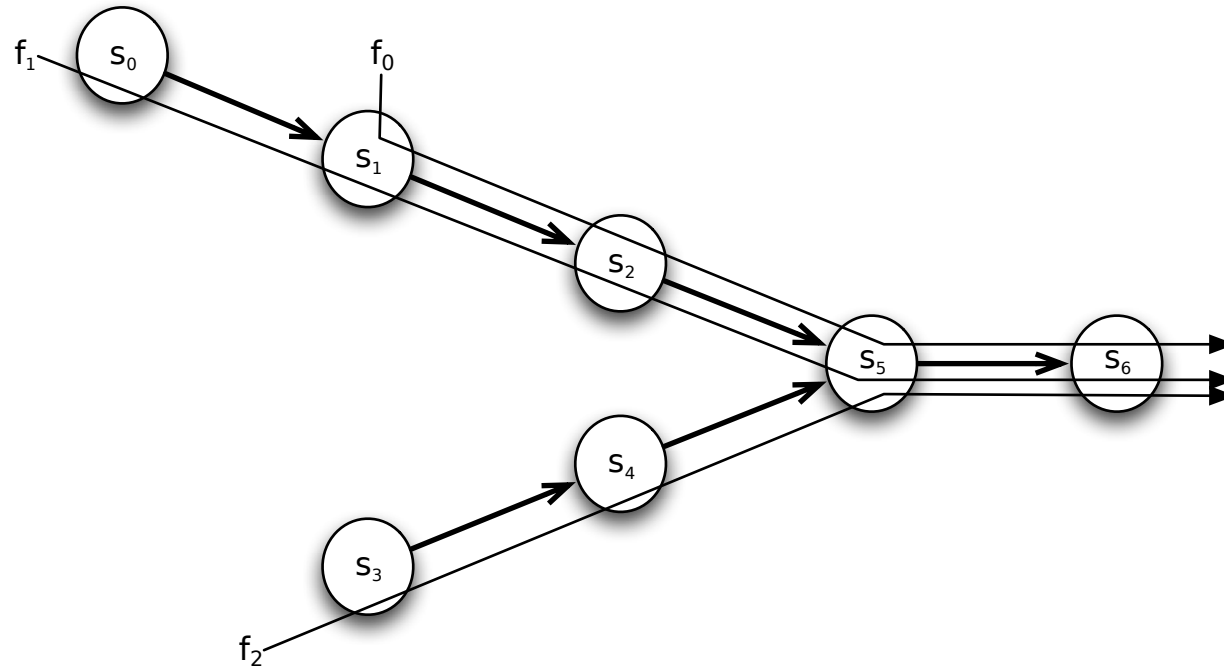
Flow f_j , $j \in \{0, 1\}$ (comparable with Tandem_1SC_2Flows_1AC_2Paths)

TFA		FIFO_MUX	ARB_MUX
s_j	$\alpha_{s_i} = \alpha_{s_j}^{f_j}$	$= \gamma_{5,25}$	
	$D_{s_j}^{f_j}$	$\beta_{s_j} = b_{s_j}^{f_j}$ $20 \cdot [t - 20]^+ = 25$ $t = 21\frac{1}{4}$	FIFO per micro flow $\beta_{s_j} = b_{s_j}^{f_j}$ $20 \cdot [t - 20]^+ = 25$ $t = 21\frac{1}{4}$
	$B_{s_j}^{f_j}$	$\alpha_{s_j}(T_{s_j}) = 5 \cdot 20 + 25$ $= 125$	
s_2	$\alpha_{s_2} = \sum_j \alpha_{s_2}^{f_j}$	$= \gamma_{5,125} + \gamma_{5,125} = \gamma_{10,250}$	
	$D_{s_2}^{f_j}$	$\beta_{s_2} = b_{s_1}$ $20 \cdot [t - 20]^+ = 250$ $t = 32\frac{1}{2}$	$\beta_{s_2} = \alpha_{s_2}$ $20 \cdot [t - 20]^+ = 10 \cdot t + 250$ $t = 65$
	$B_{s_2}^{f_j}$	$\alpha_{s_2}(T_{s_2}) = 10 \cdot 20 + 250$ $= 450$	
D^{f_j}		$\sum_{k=\{j,2\}} D_{s_k}^{f_j} = 53\frac{3}{4}$	$\sum_{k=\{j,2\}} D_{s_k}^{f_j} = 86\frac{1}{4}$
B^{f_j}		$\max_{k=\{j,2\}} b_{s_k}^{f_j} = 450$	

SFA			FIFO_MUX	ARB_MUX
s _j	α ^{xf_j} _{s_j}		= γ _{0,0}	
	β ^{l.o.f_j} _{s_j} = β _{s_j} ⊖ α ^{xf_j} _{s_j} = β _{s_j}		= β _{20,20}	
s ₂	α ^{xf_j} _{s₂} = α ^{f_j} _{s₂}		= γ _{5,125}	
	β ^{l.o.f_j} _{s₂} = β _{s₂} ⊖ α ^{xf_j} _{s₂} = β _{R^{l.o.f_j}_{s₂}, T^{l.o.f_j}_{s₂}}	R ^{l.o.f_j} _{s₂}	[R _{s₂} − r ^{xf_j} _{s₂}] ⁺ = 15	
		T ^{l.o.f_j} _{s₂}	β _{s₂} = b ^{xf_j} _{s₂} 20 · [t − 20] ⁺ = 125 t = 26 ¹ / ₄	β _{s₂} = α ^{xf_j} _{s₂} 20 · [t − 20] ⁺ = 5 · t + 125 t = 35
		=	= β _{15,26¹/₄}	= β _{15,35}
		β ^{l.o.f_j} _{e2e} = β _{R^{l.o.f_j}_{e2e}, T^{l.o.f_j}_{e2e}}		
D ^{f_j}		β ^{l.o.f_j} _{e2e} = b ^{f_j} 15 · [t − 46 ¹ / ₄] ⁺ = 25 t = 47 ¹¹ / ₁₂	β ^{l.o.f_j} _{e2e} = b ^{f_j} 15 · [t − 55] ⁺ = 25 t = 56 ² / ₃	
B ^{f_j}		α ^{f_j} (T ^{l.o.f_j} _{e2e}) = 5 · 46 ¹ / ₄ + 25 = 256 ¹ / ₄	α ^{f_j} (T ^{l.o.f_j} _{e2e}) = 5 · 55 + 25 = 300	

PMOO		ARB_MUX
s_j	$\alpha_{s_j}^{x'f_j}$	$= \gamma_{0,0}$
	$\alpha_{s_j}^{xf_j}$	$= \gamma_{0,0}$
s_2	$\alpha_{s_2}^{x'f_0}$	$= \gamma_{5,125}$
	$\alpha_{s_2}^{xf_0}$	$= \gamma_{5,125}$
$\beta_{e2e}^{l.o.f_j} = \beta_{R_{e2e}^{l.o.f_j}, T_{e2e}^{l.o.f_j}}$	$R_{e2e}^{l.o.f_j} = \bigwedge_{k \in \{j,2\}} \left(R_{s_k} - r_{s_k}^{xf_j} \right)$	$= (20 - 0) \wedge (20 - 5)$
		$= 15$
	$T_{e2e}^{l.o.f_j} = \sum_{k \in \{j,2\}} T_{s_k} + \frac{\sum_{k \in \{j,2\}} \left(b_{s_k}^{x'f_j} + r_{s_k}^{xf_j} \cdot T_{s_k} \right)}{R_{e2e}^{l.o.f_0}}$	$= 20 + 20 + \frac{0 + 0 \cdot 20 + 125 + 5 \cdot 20}{15}$
		$= 40 + \frac{225}{15}$
	$=$	$= 55$
D^{f_j}		$\beta_{e2e}^{l.o.f_j} = b^{f_j}$
		$15 \cdot [t - 55]^+ = 25$
		$t = 56\frac{2}{3}$
B^{f_j}		$\alpha^{f_j}(T_{e2e}^{l.o.f_j}) = 5 \cdot 55 + 25$
		$= 300$

Tree_1SC_3Flows_1AC_3Paths



- $\beta_{s_0} = \beta_{s_1} = \beta_{s_2} = \beta_{R_{s_i}, T_{s_i}} = \beta_{20,20}, i \in \{0, 1, 2\}$
- $\mathcal{F} = \{f_0, f_1, f_2\}$
- $\alpha^{f_0} = \alpha^{f_1} = \alpha^{f_2} = \gamma_{r^{f_j}, b^{f_j}} = \gamma_{5,25}, j \in \{0, 1, 2\}$

arrivalBound($s_1, \{f_1\}, \mathcal{G}$), $\mathcal{G} \in \mathcal{P}(\mathcal{F}) = \alpha_{s_1}^{f_1}$		FIFO_MUX	ARB_MUX
$\alpha_{s_0}^{f_1}$			$= \gamma_{5,25}$
$\alpha_{s_0}^{xf_1}$			$= \gamma_{0,0}$
$\beta_{s_0}^{l.o.f_1} = \beta_{s_0} \ominus \alpha_{s_0}^{xf_1} = \beta_{R_{s_0}^{l.o.f_1}, T_{s_0}^{l.o.f_1}}$	$=$		$= \beta_{20,20}$
$\alpha_{s_1}^{f_1} = \alpha_{s_0}^{f_1} \oslash \beta_{s_0}^{l.o.f_1} = \gamma_{r_{s_1}^{f_1}, b_{s_1}^{f_1}}$	$r_{s_1}^{f_1}$		$= 5$
	$b_{s_1}^{f_1}$		$\alpha_{s_0}^{f_1}(T_{s_0}^{l.o.f_1}) = 5 \cdot 20 + 25 = 125$
	$=$		$= \gamma_{5,125}$

arrivalBound($s_2, \{f_1\}, \{f_0\}) = \alpha_{s_2}^{f_1}$		FIFO_MUX	ARB_MUX
$\alpha_{s_1}^{f_1}$			$= \gamma_{5,125}$
$\alpha_{s_1}^{xf_1}$			$= \gamma_{0,0}$
$\beta_{s_1}^{l.o.f_1} = \beta_{s_1} \ominus \alpha_{s_1}^{xf_1} = \beta_{R_{s_1}^{l.o.f_1}, T_{s_1}^{l.o.f_1}}$	$=$		$= \beta_{20,20}$
$\alpha_{s_2}^{f_1} = \alpha_{s_1}^{f_1} \oslash \beta_{s_1}^{l.o.f_1} = \gamma_{r_{s_2}^{f_1}, b_{s_2}^{f_1}}$	$r_{s_2}^{f_1}$		$= 5$
	$b_{s_2}^{f_1}$		$\alpha_{s_1}^{f_1}(T_{s_1}^{l.o.f_1}) = 5 \cdot 20 + 125 = 225$
	$=$		$= \gamma_{5,225}$

arrivalBound($s_5, \{f_1\}, \{f_0\}) = \alpha_{s_5}^{f_1}$		FIFO_MUX	ARB_MUX
$\alpha_{s_2}^{f_1}$			$= \gamma_{5,225}$
$\alpha_{s_2}^{xf_1}$			$= \gamma_{0,0}$
$\beta_{s_2}^{l.o.f_1} = \beta_{s_2} \ominus \alpha_{s_2}^{xf_1} = \beta_{R_{s_2}^{l.o.f_1}, T_{s_2}^{l.o.f_1}}$	$=$		$= \beta_{20,20}$
$\alpha_{s_5}^{f_1} = \alpha_{s_2}^{f_1} \oslash \beta_{s_2}^{l.o.f_1} = \gamma_{r_{s_5}^{f_1}, b_{s_5}^{f_1}}$	$r_{s_5}^{f_1}$		$= 5$
	$b_{s_5}^{f_1}$		$\alpha_{s_2}^{f_1}(T_{s_2}^{l.o.f_1}) = 5 \cdot 20 + 225 = 325$
	$=$		$= \gamma_{5,325}$

arrivalBound($s_4, \{f_2\}, \mathcal{G}$), $\mathcal{G} \in \mathcal{P}(\mathcal{F}) = \alpha_{s_4}^{f_2}$		FIFO_MUX	ARB_MUX
$\alpha_{s_3}^{f_2}$			$= \gamma_{5,25}$
$\alpha_{s_3}^{xf_2}$			$= \gamma_{0,0}$
$\beta_{s_3}^{l.o.f_2} = \beta_{s_3} \ominus \alpha_{s_3}^{xf_2} = \beta_{R_{s_3}^{l.o.f_2}, T_{s_3}^{l.o.f_2}}$	$=$		$= \beta_{20,20}$
$\alpha_{s_4}^{f_2} = \alpha_{s_3}^{f_2} \oslash \beta_{s_3}^{l.o.f_2} = \gamma_{r_{s_4}^{f_2}, b_{s_4}^{f_2}}$	$r_{s_4}^{f_2}$		$= 5$
	$b_{s_4}^{f_2}$		$\alpha_{s_3}^{f_2}(T_{s_3}^{l.o.f_2}) = 5 \cdot 20 + 25 = 125$
	$=$		$= \gamma_{5,125}$

$\text{arrivalBound}(s_5, \{f_2\}, \mathcal{G}), \mathcal{G} \in \mathcal{P}(\mathcal{F}) = \alpha_{s_5}^{f_2}$		FIFO_MUX	ARB_MUX
$\alpha_{s_4}^{f_2}$			$= \gamma_{5,125}$
$\alpha_{s_4}^{x f_2}$			$= \gamma_{0,0}$
$\beta_{s_4}^{\text{l.o.} f_2} = \beta_{s_4} \ominus \alpha_{s_4}^{x f_2} = \beta_{R_{s_4}^{\text{l.o.} f_2}, T_{s_4}^{\text{l.o.} f_2}}$	$=$		$= \beta_{20,20}$
$\alpha_{s_5}^{f_2} = \alpha_{s_4}^{f_2} \oslash \beta_{s_4}^{\text{l.o.} f_2} = \gamma_{r_{s_5}^{f_2}, b_{s_5}^{f_2}}$	$r_{s_5}^{f_2}$		$= 5$
	$b_{s_5}^{f_2}$	$\alpha_{s_4}^{f_2}(T_{s_4}^{\text{l.o.} f_2}) = 5 \cdot 20 + 125 = 225$	
	$=$		$= \gamma_{5,225}$

$\text{arrivalBound}(s_6, \{f_1, f_2\}, \{f_0\}) = \alpha_{s_6}^{\{f_1, f_2\}}$		FIFO_MUX	ARB_MUX
$\alpha_{s_5}^{\{f_1, f_2\}}$			$= \gamma_{10,550}$
$\alpha_{s_5}^{x \{f_1, f_2\}}$			$= \gamma_{0,0}$
$\beta_{s_5}^{\text{l.o.} \{f_1, f_2\}} = \beta_{s_5} \ominus \alpha_{s_5}^{x \{f_1, f_2\}} = \beta_{R_{s_5}^{\text{l.o.} \{f_1, f_2\}}, T_{s_5}^{\text{l.o.} \{f_1, f_2\}}}$	$=$		$= \beta_{20,20}$
$\alpha_{s_6}^{\{f_1, f_2\}} = \alpha_{s_5}^{\{f_1, f_2\}} \oslash \beta_{s_5}^{\text{l.o.} \{f_1, f_2\}} = \gamma_{r_{s_6}^{\{f_1, f_2\}}, b_{s_6}^{\{f_1, f_2\}}}$	$r_{s_6}^{\{f_1, f_2\}}$		$= 10$
	$b_{s_6}^{\{f_1, f_2\}}$	$\alpha_{s_5}^{\{f_1, f_2\}}(T_{s_5}^{\text{l.o.} \{f_1, f_2\}}) = 10 \cdot 20 + 550 = 750$	
	$=$		$= \gamma_{10,750}$

$\text{arrivalBound}(s_2, \{f_0, f_1\}, \mathcal{G}), \mathcal{G} \in \mathcal{P}(\{f_2\}) = \alpha_{s_2}^{\{f_0, f_1\}}$		FIFO_MUX	ARB_MUX
$\alpha_{s_1}^{\{f_0, f_1\}}$			$= \gamma_{10,150}$
$\alpha_{s_1}^{x \{f_0, f_1\}}$			$= \gamma_{0,0}$
$\beta_{s_1}^{\text{l.o.} \{f_0, f_1\}} = \beta_{s_1} \ominus \alpha_{s_1}^{x \{f_0, f_1\}} = \beta_{R_{s_1}^{\text{l.o.} \{f_0, f_1\}}, T_{s_1}^{\text{l.o.} \{f_0, f_1\}}}$	$=$		$= \beta_{20,20}$
$\alpha_{s_2}^{\{f_0, f_1\}} = \alpha_{s_1}^{\{f_0, f_1\}} \oslash \beta_{s_1}^{\text{l.o.} \{f_0, f_1\}} = \gamma_{r_{s_2}^{\{f_0, f_1\}}, b_{s_2}^{\{f_0, f_1\}}}$	$r_{s_2}^{\{f_0, f_1\}}$		$= 10$
	$b_{s_2}^{\{f_0, f_1\}}$	$\alpha_{s_1}^{\{f_0, f_1\}}(T_{s_1}^{\text{l.o.} \{f_0, f_1\}}) = 10 \cdot 20 + 150 = 350$	
	$=$		$= \gamma_{10,350}$

$\text{arrivalBound}(s_5, \{f_0, f_1\}, \mathcal{G}), \mathcal{G} \in \mathcal{P}(\{f_2\}) = \alpha_{s_5}^{\{f_0, f_1\}}$		FIFO_MUX	ARB_MUX
$\alpha_{s_2}^{\{f_0, f_1\}}$			$= \gamma_{10,350}$
$\alpha_{s_2}^{x\{f_0, f_1\}}$			$= \gamma_{0,0}$
$\beta_{s_2}^{\text{l.o.}\{f_0, f_1\}} = \beta_{s_2} \ominus \alpha_{s_2}^{x\{f_0, f_1\}} = \beta_{R_{s_2}^{\text{l.o.}\{f_0, f_1\}}, T_{s_2}^{\text{l.o.}\{f_0, f_1\}}}$	$=$		$= \beta_{20,20}$
$\alpha_{s_5}^{\{f_0, f_1\}} = \alpha_{s_2}^{\{f_0, f_1\}} \odot \beta_{s_2}^{\text{l.o.}\{f_0, f_1\}} = \gamma_{r_{s_5}^{\{f_0, f_1\}}, b_{s_5}^{\{f_0, f_1\}}}$	$r_{s_5}^{\{f_0, f_1\}}$		$= 10$
	$b_{s_5}^{\{f_0, f_1\}}$		$\alpha_{s_2}^{\{f_0, f_1\}}(T_{s_2}^{\text{l.o.}\{f_0, f_1\}}) = 10 \cdot 20 + 350 = 550$
	$=$		$= \gamma_{10,550}$

$\text{arrivalBound}(s_6, \{f_0, f_1, f_2\}, \{\}) = \alpha_{s_6}^{\{f_0, f_1, f_2\}}$		FIFO_MUX	ARB_MUX
$\alpha_{s_5}^{\{f_0, f_1, f_2\}}$			$= \gamma_{10,775}$
$\alpha_{s_5}^{x\{f_0, f_1, f_2\}}$			$= \gamma_{0,0}$
$\beta_{s_5}^{\text{l.o.}\{f_0, f_1, f_2\}} = \beta_{s_5} \ominus \alpha_{s_5}^{x\{f_0, f_1, f_2\}} = \beta_{R_{s_5}^{\text{l.o.}\{f_0, f_1, f_2\}}, T_{s_5}^{\text{l.o.}\{f_0, f_1, f_2\}}}$	$=$		$= \beta_{20,20}$
$\alpha_{s_6}^{\{f_0, f_1, f_2\}} = \alpha_{s_5}^{\{f_0, f_1, f_2\}} \odot \beta_{s_5}^{\text{l.o.}\{f_0, f_1, f_2\}} = \gamma_{r_{s_6}^{\{f_0, f_1, f_2\}}, b_{s_6}^{\{f_0, f_1, f_2\}}}$	$r_{s_6}^{\{f_0, f_1, f_2\}}$		$= 15$
	$b_{s_6}^{\{f_0, f_1, f_2\}}$		$\alpha_{s_5}^{\{f_0, f_1, f_2\}}(T_{s_5}^{\text{l.o.}\{f_0, f_1, f_2\}}) = 15 \cdot 20 + 775 = 1075$
	$=$		$= \gamma_{15,1075}$

Flow f_0

TFA		FIFO_MUX	ARB_MUX
s_1	$\alpha_{s_1} = \alpha_{s_1}^{f_0} + \alpha_{s_1}^{f_1}$	$= \gamma_{5,25} + \gamma_{5,125} = \gamma_{10,150}$	
	$D_{s_1}^{f_0}$	$\beta_{s_1} = b_{s_1}$ $20 \cdot [t - 20]^+ = 150$ $t = 27\frac{1}{2}$	$\beta_{s_1} = \alpha_{s_1}$ $20 \cdot [t - 20]^+ = 10 \cdot t + 150$ $t = 55$
	$B_{s_1}^{f_0}$	$\alpha_{s_1}(T_{s_1}) = 10 \cdot 20 + 150$ $= 350$	
s_2	$\alpha_{s_2} = \alpha_{s_2}^{\{f_0, f_1\}}$	$= \gamma_{10,350}$	
	$D_{s_2}^{f_0}$	$\beta_{s_2} = b_{s_2}$ $20 \cdot [t - 20]^+ = 350$ $t = 37\frac{1}{2}$	$\beta_{s_2} = \alpha_{s_2}$ $20 \cdot [t - 20]^+ = 10 \cdot t + 350$ $t = 75$
	$B_{s_2}^{f_0}$	$\alpha_{s_2}(T_{s_2}) = 10 \cdot 20 + 350$ $= 550$	
s_5	$\alpha_{s_5} = \alpha_{s_5}^{\{f_0, f_1\}} + \alpha_{s_5}^{f_2}$	$= \gamma_{10,550} + \gamma_{5,225} = \gamma_{15,775}$	
	$D_{s_5}^{f_0}$	$\beta_{s_5} = b_{s_5}$ $20 \cdot [t - 20]^+ = 775$ $t = 58\frac{3}{4}$	$\beta_{s_5} = \alpha_{s_5}$ $20 \cdot [t - 20]^+ = 15 \cdot t + 775$ $t = 235$
	$B_{s_5}^{f_0}$	$\alpha_{s_5}(T_{s_5}) = 15 \cdot 20 + 775$ $= 1075$	
s_6	$\alpha_{s_6} = \alpha_{s_6}^{\{f_0, f_1, f_2\}}$	$= \gamma_{15,1075}$	
	$D_{s_6}^{f_0}$	$\beta_{s_6} = b_{s_6}$ $20 \cdot [t - 20]^+ = 1075$ $t = 73\frac{3}{4}$	$\beta_{s_6} = \alpha_{s_6}$ $20 \cdot [t - 20]^+ = 15 \cdot t + 1075$ $t = 295$
	$B_{s_6}^{f_0}$	$\alpha_{s_6}(T_{s_6}) = 15 \cdot 20 + 1075$ $= 1375$	
$D_{s_k}^{f_0}$		$\sum_{k=\{1,2,5,6\}} D_{s_k}^{f_0} = 27\frac{1}{2} + 37\frac{1}{2} + 58\frac{3}{4} + 73\frac{3}{4} = 197\frac{1}{2}$	
$B_{s_k}^{f_0}$		$\sum_{k=\{1,2,5,6\}} B_{s_k}^{f_0} = 55 + 75 + 235 + 295 = 660$	
		$\max_{k=\{1,2,5,6\}} B_{s_k}^{f_0} = 1375$	

SFA FIFO_MUX:

$$\begin{aligned}
\beta_{e2e}^{l.o.f_0} &= (\beta_{s_1}^{l.o.xf_0} \ominus \alpha_{s_1}^{xf_0}) \otimes (\beta_{s_2}^{l.o.xf_0} \ominus \alpha_{s_2}^{xf_0}) \otimes (\beta_{s_5}^{l.o.xf_0} \ominus \alpha_{s_5}^{xf_0}) \otimes (\beta_{s_6}^{l.o.xf_0} \ominus \alpha_{s_6}^{xf_0}) \\
&= (\beta_{s_1}^{l.o.xf_0} \ominus \alpha_{s_1}^{xf_0}) \otimes (\beta_{s_2}^{l.o.xf_0} \ominus \alpha_{s_2}^{xf_0}) \otimes (\beta_{s_5}^{l.o.xf_0} \ominus (\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2})) \otimes (\beta_{s_6}^{l.o.xf_0} \ominus \alpha_{s_6}^{\{f_1, f_2\}}) \\
&= (\beta_{s_1} \ominus \alpha_{s_1}^{f_1}) \otimes (\beta_{s_2} \ominus \alpha_{s_2}^{f_1}) \otimes (\beta_{s_5} \ominus (\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2})) \otimes (\beta_{s_6} \ominus (\alpha_{s_5}^{\{f_1, f_2\}} \oslash \beta_{s_5}^{l.o.\{f_1, f_2\}})) \\
&= (\beta_{s_1} \ominus \alpha_{s_1}^{f_1}) \otimes (\beta_{s_2} \ominus \alpha_{s_2}^{f_1}) \otimes (\beta_{s_5} \ominus (\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2})) \otimes (\beta_{s_6} \ominus ((\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2}) \oslash \beta_{s_5}^{l.o.\{f_1, f_2\}})) \\
&= (\beta_{s_1} \ominus \alpha_{s_1}^{f_1}) \otimes (\beta_{s_2} \ominus \alpha_{s_2}^{f_1}) \otimes (\beta_{s_5} \ominus (\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2})) \otimes (\beta_{s_6} \ominus ((\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2}) \oslash ((\beta_{s_5} \ominus \alpha_{s_5}^{x\{f_1, f_2\}})))) \\
&= (\beta_{s_1} \ominus \alpha_{s_1}^{f_1}) \otimes (\beta_{s_2} \ominus \alpha_{s_2}^{f_1}) \otimes (\beta_{s_5} \ominus (\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2})) \otimes (\beta_{s_6} \ominus ((\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2}) \oslash \beta_{s_5})) \\
&= (\beta_{20,20} \ominus \gamma_{5,125}) \otimes (\beta_{20,20} \ominus \gamma_{5,225}) \otimes (\beta_{20,20} \ominus (\gamma_{5,325} + \gamma_{5,225})) \otimes (\beta_{20,20} \ominus ((\gamma_{5,325} + \gamma_{5,225}) \oslash \beta_{20,20})) \\
&= (\beta_{20,20} \ominus \gamma_{5,125}) \otimes (\beta_{20,20} \ominus \gamma_{5,225}) \otimes (\beta_{20,20} \ominus \gamma_{10,550}) \otimes (\beta_{20,20} \ominus (\gamma_{10,550} \oslash \beta_{20,20})) \\
&= (\beta_{20,20} \ominus \gamma_{5,125}) \otimes (\beta_{20,20} \ominus \gamma_{5,225}) \otimes (\beta_{20,20} \ominus \gamma_{10,550}) \otimes (\beta_{20,20} \ominus \gamma_{10,750}) \\
&= \beta_{15,26\frac{1}{4}} \otimes \beta_{15,31\frac{1}{4}} \otimes \beta_{10,47\frac{1}{2}} \otimes \beta_{10,57\frac{1}{2}} \\
&= \beta_{10,162\frac{1}{2}}
\end{aligned}$$

$$\begin{aligned}
D^{f_0} &= \frac{R_{e2e}^{l.o.f_0} \cdot T_{e2e}^{l.o.f_0} + b^{f_0}}{R_{e2e}^{l.o.f_0}} \\
&= \frac{10 \cdot 162\frac{1}{2} + 25}{10} \\
&= 165
\end{aligned}$$

$$\begin{aligned}
B^{f_0} &= \alpha^{f_0}(T_{e2e}^{l.o.f_0}) \\
&= 5 \cdot 162\frac{1}{2} + 25 \\
&= 837\frac{1}{2}
\end{aligned}$$

SFA ARB_MUX:

$$\begin{aligned}
\beta_{e2e}^{l.o.f_0} &= (\beta_{s_1}^{l.o.xf_0} \ominus \alpha_{s_1}^{xf_0}) \otimes (\beta_{s_2}^{l.o.xf_0} \ominus \alpha_{s_2}^{xf_0}) \otimes (\beta_{s_5}^{l.o.xf_0} \ominus \alpha_{s_5}^{xf_0}) \otimes (\beta_{s_6}^{l.o.xf_0} \ominus \alpha_{s_6}^{xf_0}) \\
&= (\beta_{s_1}^{l.o.xf_0} \ominus \alpha_{s_1}^{xf_0}) \otimes (\beta_{s_2}^{l.o.xf_0} \ominus \alpha_{s_2}^{xf_0}) \otimes (\beta_{s_5}^{l.o.xf_0} \ominus (\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2})) \otimes (\beta_{s_6}^{l.o.xf_0} \ominus \alpha_{s_6}^{\{f_1, f_2\}}) \\
&= (\beta_{s_1} \ominus \alpha_{s_1}^{f_1}) \otimes (\beta_{s_2} \ominus \alpha_{s_2}^{f_1}) \otimes (\beta_{s_5} \ominus (\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2})) \otimes (\beta_{s_6} \ominus (\alpha_{s_5}^{\{f_1, f_2\}} \oslash \beta_{s_5}^{l.o.\{f_1, f_2\}})) \\
&= (\beta_{s_1} \ominus \alpha_{s_1}^{f_1}) \otimes (\beta_{s_2} \ominus \alpha_{s_2}^{f_1}) \otimes (\beta_{s_5} \ominus (\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2})) \otimes (\beta_{s_6} \ominus ((\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2}) \oslash \beta_{s_5}^{l.o.\{f_1, f_2\}})) \\
&= (\beta_{s_1} \ominus \alpha_{s_1}^{f_1}) \otimes (\beta_{s_2} \ominus \alpha_{s_2}^{f_1}) \otimes (\beta_{s_5} \ominus (\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2})) \otimes (\beta_{s_6} \ominus ((\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2}) \oslash ((\beta_{s_5} \ominus \alpha_{s_5}^{x\{f_1, f_2\}})))) \\
&= (\beta_{s_1} \ominus \alpha_{s_1}^{f_1}) \otimes (\beta_{s_2} \ominus \alpha_{s_2}^{f_1}) \otimes (\beta_{s_5} \ominus (\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2})) \otimes (\beta_{s_6} \ominus ((\alpha_{s_5}^{f_1} + \alpha_{s_5}^{f_2}) \oslash \beta_{s_5})) \\
&= (\beta_{20,20} \ominus \gamma_{5,125}) \otimes (\beta_{20,20} \ominus \gamma_{5,225}) \otimes (\beta_{20,20} \ominus (\gamma_{5,325} + \gamma_{5,225})) \otimes (\beta_{20,20} \ominus ((\gamma_{5,325} + \gamma_{5,225}) \oslash \beta_{20,20})) \\
&= (\beta_{20,20} \ominus \gamma_{5,125}) \otimes (\beta_{20,20} \ominus \gamma_{5,225}) \otimes (\beta_{20,20} \ominus \gamma_{10,550}) \otimes (\beta_{20,20} \ominus (\gamma_{10,550} \oslash \beta_{20,20})) \\
&= (\beta_{20,20} \ominus \gamma_{5,125}) \otimes (\beta_{20,20} \ominus \gamma_{5,225}) \otimes (\beta_{20,20} \ominus \gamma_{10,550}) \otimes (\beta_{20,20} \ominus \gamma_{10,750}) \\
&= \beta_{15,35} \otimes \beta_{15,41\frac{2}{3}} \otimes \beta_{10,95} \otimes \beta_{10,115} \\
&= \beta_{10,286\frac{2}{3}}
\end{aligned}$$

$$\begin{aligned}
D^{f_0} &= \frac{R_{e2e}^{l.o.f_0} \cdot T_{e2e}^{l.o.f_0} + b^{f_0}}{R_{e2e}^{l.o.f_0}} \\
&= \frac{10 \cdot 286\frac{2}{3} + 25}{10} \\
&= 289\frac{1}{6}
\end{aligned}$$

$$\begin{aligned}
B^{f_0} &= \alpha^{f_0}(T_{e2e}^{l.o.f_0}) \\
&= 5 \cdot 286\frac{2}{3} + 25 \\
&= 1458\frac{1}{3}
\end{aligned}$$

PMOO		ARB_MUX
s_1	$\alpha_{s_1}^{x'f_0}$	$= \gamma_{5,125}$
	$\alpha_{s_1}^{xf_0}$	$= \gamma_{5,125}$
s_2	$\alpha_{s_2}^{x'f_0}$	$= \gamma_{0,0}$
	$\alpha_{s_2}^{xf_0}$	$= \gamma_{5,125}$
s_5	$\alpha_{s_5}^{x'f_0}$	$= \gamma_{5,225}$
	$\alpha_{s_5}^{xf_0}$	$= \gamma_{10,xxx}$
s_6	$\alpha_{s_6}^{x'f_0}$	$= \gamma_{0,0}$
	$\alpha_{s_6}^{xf_0}$	$= \gamma_{10,xxx}$
$\beta_{e2e}^{l.o.f_0} = \beta_{R_{e2e}^{l.o.f_0}, T_{e2e}^{l.o.f_0}}$	$R_{e2e}^{l.o.f_0} = \bigwedge_{i \in \{1,2,5,6\}} (R_{s_i} - r_{s_i}^{xf_0})$	$= (20 - 5) \wedge (20 - 5) \wedge (20 - 10) \wedge (20 - 10)$
		$= \frac{10}{125 + 5 \cdot 20 + 0 + 5 \cdot 20 + 225 + 10 \cdot 20 + 0 + 10 \cdot 20}$
	$T_{e2e}^{l.o.f_0} = \sum_{i \in \{1,2,5,6\}} T_{s_i} + \frac{\sum_{i \in \{1,2,5,6\}} (b_{s_i}^{x'f_0} + r_{s_i}^{xf_0} \cdot T_{s_i})}{R_{e2e}^{l.o.f_0}}$	$= 80 + \frac{10}{10}$
	$=$	$= 80 + \frac{950}{10}$
		$= \beta_{10,185}$
D^{f_0}		$\beta_{e2e}^{l.o.f_0} = b^{f_0}$ $10 \cdot [t - 175]^+ = 25$ $t = 177\frac{1}{2}$
B^{f_0}		$\alpha^{f_0}(T_{e2e}^{l.o.f_0}) = 5 \cdot 175 + 25$ $= 900$

Flow f_1

TFA		FIFO_MUX	ARB_MUX
s_0	$\alpha_{s_1} = \alpha_{s_1}^{f_1}$	$= \gamma_{5,25}$	
	$D_{s_0}^{f_1}$	$\beta_{s_0} = b_{s_0}$ $20 \cdot [t - 20]^+ = 25$ $t = 21\frac{1}{4}$	FIFO per micro flow $\beta_{s_0} = b_{s_0}$ $20 \cdot [t - 20]^+ = 25$ $t = 21\frac{1}{4}$
	$B_{s_0}^{f_1}$	$\alpha_{s_0}(T_{s_0}) = 5 \cdot 20 + 25$ $= 125$	
s_1	$\alpha_{s_1} = \alpha_{s_1}^{f_0} + \alpha_{s_1}^{f_1}$	$= \gamma_{5,25} + \gamma_{5,125} = \gamma_{10,150}$	
	$D_{s_1}^{f_1}$	$= 27\frac{1}{2}$	$= 55$
	$B_{s_1}^{f_1}$	$= 350$	
s_2	$\alpha_{s_2} = \alpha_{s_2}^{\{f_0, f_1\}}$	$= \gamma_{10,350}$	
	$D_{s_2}^{f_1}$	$= 37\frac{1}{2}$	$= 75$
	$B_{s_2}^{f_1}$	$= 550$	
s_5	$\alpha_{s_5} = \alpha_{s_5}^{\{f_0, f_1\}} + \alpha_{s_5}^{f_2}$	$= \gamma_{5,225} + \gamma_{10,550} = \gamma_{15,775}$	
	$D_{s_5}^{f_1}$	$= 58\frac{3}{4}$	$= 235$
	$B_{s_5}^{f_1}$	$= 1075$	
s_6	$\alpha_{s_6} = \alpha_{s_6}^{\{f_0, f_1, f_2\}}$	$= \gamma_{15,1075}$	
	$D_{s_6}^{f_1}$	$= 73\frac{3}{4}$	$= 295$
	$B_{s_6}^{f_1}$	$= 1375$	
D^{f_1}		$= 197\frac{1}{2} + 21\frac{1}{4} = 218\frac{3}{4}$	$= 660 + 21\frac{1}{4} = 681\frac{1}{4}$
B^{f_1}		$= 1375$	

SFA FIFO_MUX:

[illegible]

$$D^{f_1} = \frac{R_{\text{e2e}}^{\text{l.o.}, f_1} \cdot T_{\text{e2e}}^{\text{l.o.}, f_1} + b^{f_1}}{R_{\text{e2e}}^{\text{l.o.}, f_1}}$$

$$= \frac{10 \cdot 162\frac{1}{2} + 25}{10}$$

$$= 165$$

$$B^{f_1} = \alpha^{f_1} \left(T_{\text{e2e}}^{\text{l.o.}, f_1} \right)$$

$$= 5 \cdot 162\frac{1}{2} + 25$$

$$= 837\frac{1}{2}$$

SFA_ARB_MUX:

[illegible]

PMOO		ARB_MUX
s_0	$\alpha_{s_0}^{x'f_1}$	$= \gamma_{0,0}$
	$\alpha_{s_0}^{xf_1}$	$= \gamma_{0,0}$
s_1	$\alpha_{s_1}^{x'f_1}$	$= \gamma_{5,25}$
	$\alpha_{s_1}^{xf_1}$	$= \gamma_{5,25}$
s_2	$\alpha_{s_2}^{x'f_1}$	$= \gamma_{0,0}$
	$\alpha_{s_2}^{xf_1}$	$= \gamma_{5,125}$
s_5	$\alpha_{s_5}^{x'f_1}$	$= \gamma_{5,225}$
	$\alpha_{s_5}^{xf_1}$	$= \gamma_{10,xxx}$
s_6	$\alpha_{s_6}^{x'f_1}$	$= \gamma_{0,0}$
	$\alpha_{s_6}^{xf_1}$	$= \gamma_{10,xxx}$
$\beta_{e2e}^{l.o.f_1} = \beta_{R_{e2e}^{l.o.f_1}, T_{e2e}^{l.o.f_1}}$	$R_{e2e}^{l.o.f_1} = \bigwedge_{i \in \{0,1,2,5,6\}} (R_{s_i} - r_{s_i}^{xf_1})$	$= (20 - 0) \wedge (20 - 5) \wedge (20 - 5) \wedge (20 - 10) \wedge (20 - 10)$
		$= \frac{10}{0 + 0 \cdot 20 + 25 + 5 \cdot 20 + 0 + 5 \cdot 20 + 225 + 10 \cdot 20 + 0 + 10 \cdot 20}$
	$T_{e2e}^{l.o.f_1} = \sum_{i \in \{0,1,2,5,6\}} T_{s_i} + \frac{\sum_{i \in \{0,1,2,5,6\}} (b_{s_i}^{x'f_1} + r_{s_i}^{xf_1} \cdot T_{s_i})}{R_{e2e}^{l.o.f_1}}$	$= 100 + \frac{10}{10}$
	$=$	$= 100 + \frac{850}{10}$
		$= \beta_{10,185}$
D^{f_1}		$\beta_{e2e}^{l.o.f_1} = b^{f_1}$
		$10 \cdot [t - 185]^+ = 25$
		$t = 187\frac{1}{2}$
B^{f_1}		$\alpha^{f_1}(T_{e2e}^{l.o.f_1}) = 5 \cdot 185 + 25$
		$= 950$

Flow f_2

TFA		FIFO_MUX	ARB_MUX
s_3	$\alpha_{s_3} = \alpha_{s_3}^{f_2}$	$= \gamma_{5,25}$	
	$D_{s_3}^{f_2}$	$\beta_{s_3} = b_{s_3}$ $20 \cdot [t - 20]^+ = 25$ $t = 21\frac{1}{4}$	FIFO per micro flow $\beta_{s_3} = b_{s_3}$ $20 \cdot [t - 20]^+ = 25$ $t = 21\frac{1}{4}$
	$B_{s_3}^{f_2}$	$\alpha_{s_3}(T_{s_3}) = 5 \cdot 20 + 25$ $= 125$	
s_4	$\alpha_{s_4} = \alpha_{s_4}^{f_2}$	$= \gamma_{5,125}$	
	$D_{s_4}^{f_2}$	$\beta_{s_4} = b_{s_4}$ $20 \cdot [t - 20]^+ = 125$ $t = 26\frac{1}{4}$	FIFO per micro flow $\beta_{s_4} = b_{s_4}$ $20 \cdot [t - 20]^+ = 125$ $t = 26\frac{1}{4}$
	$B_{s_4}^{f_2}$	$\alpha_{s_4}(T_{s_4}) = 5 \cdot 20 + 125$ $= 225$	
s_5	$\alpha_{s_5} = \alpha_{s_5}^{\{f_0, f_1\}} + \alpha_{s_5}^{f_2}$	$= \gamma_{5,225} + \gamma_{10,550} = \gamma_{15,775}$	
	$D_{s_5}^{f_2}$	$= 58\frac{3}{4}$	$= 235$
	$B_{s_5}^{f_2}$	$= 1075$	
s_6	$\alpha_{s_6} = \alpha_{s_6}^{\{f_0, f_1, f_2\}}$	$= \gamma_{15,1075}$	
	$D_{s_6}^{f_2}$	$= 73\frac{3}{4}$	$= 295$
	$B_{s_6}^{f_2}$	$= 1375$	
D^{f_2}		$= 180$	$= 577\frac{1}{2}$
B^{f_2}		$= 1375$	

SFA FIFO_MUX:

$$\begin{aligned}
\beta_{e2e}^{l.o.f2} &= (\beta_{s3}^{l.o.xf2} \ominus \alpha_{s3}^{xf2}) \otimes (\beta_{s4}^{l.o.xf2} \ominus \alpha_{s4}^{xf2}) \otimes (\beta_{s5}^{l.o.xf2} \ominus \alpha_{s5}^{xf2}) \otimes (\beta_{s6}^{l.o.xf2} \ominus \alpha_{s6}^{xf2}) \\
&= \beta_{s3} \otimes \beta_{s4} \otimes \left((\beta_{s5} \ominus \alpha_{s5}^{xf2}) \ominus \alpha_{s5}^{\{f0,f1\}} \right) \otimes (\beta_{s6}^{l.o.xf2} \ominus (\alpha_{s5}^{xf2} \oslash \beta_{s5}^{l.o.xf2})) \\
&= \beta_{s3} \otimes \beta_{s4} \otimes \left(\beta_{s5} \ominus \alpha_{s5}^{\{f0,f1\}} \right) \otimes \left(\beta_{s6} \ominus \left(\alpha_{s5}^{\{f0,f1\}} \oslash \beta_{s5} \right) \right) \\
&= \beta_{s3} \otimes \beta_{s4} \otimes \left(\beta_{s5} \ominus \left(\alpha_{s1}^{\{f0,f1\}} \oslash (\beta_{s1} \otimes \beta_{s2}) \right) \right) \otimes \left(\beta_{s6} \ominus \left(\left(\alpha_{s1}^{\{f0,f1\}} \oslash (\beta_{s1} \otimes \beta_{s2}) \right) \oslash \beta_{s5} \right) \right) \\
&= \beta_{s3} \otimes \beta_{s4} \otimes \left(\beta_{s5} \ominus \left(((\alpha^{f1} \oslash \beta_{s0}) + \alpha^{f0}) \oslash (\beta_{s1} \otimes \beta_{s2}) \right) \right) \otimes \left(\beta_{s6} \ominus \left((((\alpha^{f1} \oslash \beta_{s0}) + \alpha^{f0}) \oslash (\beta_{s1} \otimes \beta_{s2})) \oslash \beta_{s5} \right) \right) \\
&= \beta_{20,20} \otimes \beta_{20,20} \otimes (\beta_{20,20} \ominus (((\gamma_{5,25} \oslash \beta_{20,20}) + \gamma_{5,25}) \oslash (\beta_{20,20} \otimes \beta_{20,20}))) \otimes (\beta_{20,20} \ominus (((((\gamma_{5,25} \oslash \beta_{20,20}) + \gamma_{5,25}) \oslash (\beta_{20,20} \otimes \beta_{20,20})) \oslash \beta_{20,20}))) \\
&= \beta_{20,40} \otimes (\beta_{20,20} \ominus (((\gamma_{5,25} \oslash \beta_{20,20}) + \gamma_{5,25}) \oslash \beta_{20,40})) \otimes (\beta_{20,20} \ominus (((((\gamma_{5,25} \oslash \beta_{20,20}) + \gamma_{5,25}) \oslash \beta_{20,40}) \oslash \beta_{20,20}))) \\
&= \beta_{20,40} \otimes (\beta_{20,20} \ominus ((\gamma_{5,125} + \gamma_{5,25}) \oslash \beta_{20,40})) \otimes (\beta_{20,20} \ominus (((\gamma_{5,125} + \gamma_{5,25}) \oslash \beta_{20,40}) \oslash \beta_{20,20})) \\
&= \beta_{20,40} \otimes (\beta_{20,20} \ominus (\gamma_{10,150} \oslash \beta_{20,40})) \otimes (\beta_{20,20} \ominus ((\gamma_{10,150} \oslash \beta_{20,40}) \oslash \beta_{20,20})) \\
&= \beta_{20,40} \otimes (\beta_{20,20} \ominus \gamma_{10,550}) \otimes (\beta_{20,20} \ominus (\gamma_{10,550} \oslash \beta_{20,20})) \\
&= \beta_{20,40} \otimes (\beta_{20,20} \ominus \gamma_{10,550}) \otimes (\beta_{20,20} \ominus \gamma_{10,750}) \\
&= \beta_{20,40} \otimes \beta_{10,47\frac{1}{2}} \otimes \beta_{10,55\frac{1}{2}} \\
&= \beta_{10,145}
\end{aligned}$$

$$\begin{aligned}
D^{f1} &= \frac{R_{e2e}^{l.o.f1} \cdot T_{e2e}^{l.o.f1} + b^{f1}}{R_{e2e}^{l.o.f1}} \\
&= \frac{10 \cdot 145 + 25}{10} \\
&= 147\frac{1}{2}
\end{aligned}$$

$$\begin{aligned}
B^{f1} &= \alpha^{f1}(T_{e2e}^{l.o.f1}) \\
&= 5 \cdot 145 + 25 \\
&= 750
\end{aligned}$$

SFA ARB_MUX:

$$\begin{aligned}
\beta_{e2e}^{l.o.f_2} &= (\beta_{s_3}^{l.o.xf_2} \ominus \alpha_{s_3}^{xf_2}) \otimes (\beta_{s_4}^{l.o.xf_2} \ominus \alpha_{s_4}^{xf_2}) \otimes (\beta_{s_5}^{l.o.xf_2} \ominus \alpha_{s_5}^{xf_2}) \otimes (\beta_{s_6}^{l.o.xf_2} \ominus \alpha_{s_6}^{xf_2}) \\
&= \beta_{s_3} \otimes \beta_{s_4} \otimes \left((\beta_{s_5} \ominus \alpha_{s_5}^{xf_2}) \ominus \alpha_{s_5}^{\{f_0, f_1\}} \right) \otimes (\beta_{s_6}^{l.o.xf_2} \ominus (\alpha_{s_5}^{xf_2} \oslash \beta_{s_5}^{l.o.xf_2})) \\
&= \beta_{s_3} \otimes \beta_{s_4} \otimes \left(\beta_{s_5} \ominus \alpha_{s_5}^{\{f_0, f_1\}} \right) \otimes \left(\beta_{s_6} \ominus \left(\alpha_{s_5}^{\{f_0, f_1\}} \oslash \beta_{s_5} \right) \right) \\
&= \beta_{s_3} \otimes \beta_{s_4} \otimes \left(\beta_{s_5} \ominus \left(\alpha_{s_1}^{\{f_0, f_1\}} \oslash (\beta_{s_1} \otimes \beta_{s_2}) \right) \right) \otimes \left(\beta_{s_6} \ominus \left(\left(\alpha_{s_1}^{\{f_0, f_1\}} \oslash (\beta_{s_1} \otimes \beta_{s_2}) \right) \oslash \beta_{s_5} \right) \right) \\
&= \beta_{s_3} \otimes \beta_{s_4} \otimes (\beta_{s_5} \ominus (((\alpha^{f_1} \oslash \beta_{s_0}) + \alpha^{f_0}) \oslash (\beta_{s_1} \otimes \beta_{s_2}))) \otimes (\beta_{s_6} \ominus (((((\alpha^{f_1} \oslash \beta_{s_0}) + \alpha^{f_0}) \oslash (\beta_{s_1} \otimes \beta_{s_2})) \oslash \beta_{s_5}))) \\
&= \beta_{20,20} \otimes \beta_{20,20} \otimes (\beta_{20,20} \ominus (((\gamma_{5,25} \oslash \beta_{20,20}) + \gamma_{5,25}) \oslash (\beta_{20,20} \otimes \beta_{20,20}))) \otimes (\beta_{20,20} \ominus (((((\gamma_{5,25} \oslash \beta_{20,20}) + \gamma_{5,25}) \oslash (\beta_{20,20} \otimes \beta_{20,20})) \oslash \beta_{20,20}))) \\
&= \beta_{20,40} \otimes (\beta_{20,20} \ominus (((\gamma_{5,25} \oslash \beta_{20,20}) + \gamma_{5,25}) \oslash \beta_{20,40})) \otimes (\beta_{20,20} \ominus (((((\gamma_{5,25} \oslash \beta_{20,20}) + \gamma_{5,25}) \oslash \beta_{20,40}) \oslash \beta_{20,20}))) \\
&= \beta_{20,40} \otimes (\beta_{20,20} \ominus ((\gamma_{5,125} + \gamma_{5,25}) \oslash \beta_{20,40})) \otimes [\beta_{20,20} - (((\gamma_{5,125} + \gamma_{5,25}) \oslash \beta_{20,40}) \oslash \beta_{20,20})]^+ \\
&= \beta_{20,40} \otimes (\beta_{20,20} \ominus (\gamma_{10,150} \oslash \beta_{20,40})) \otimes (\beta_{20,20} \ominus ((\gamma_{10,150} \oslash \beta_{20,40}) \oslash \beta_{20,20})) \\
&= \beta_{20,40} \otimes (\beta_{20,20} \ominus \gamma_{10,550}) \otimes (\beta_{20,20} \ominus (\gamma_{10,550} \oslash \beta_{20,20})) \\
&= \beta_{20,40} \otimes (\beta_{20,20} \ominus \gamma_{10,550}) \otimes (\beta_{20,20} \ominus \gamma_{10,750}) \\
&= \beta_{20,40} \otimes \beta_{10,95} \otimes \beta_{10,115} \\
&= \beta_{10,250}
\end{aligned}$$

$$\begin{aligned}
D^{f_1} &= \frac{R_{e2e}^{l.o.f_1} \cdot T_{e2e}^{l.o.f_1} + b^{f_1}}{R_{e2e}^{l.o.f_1}} \\
&= \frac{10 \cdot 250 + 25}{10} \\
&= 252\frac{1}{2}
\end{aligned}$$

$$\begin{aligned}
B^{f_1} &= \alpha^{f_1}(T_{e2e}^{l.o.f_1}) \\
&= 5 \cdot 250 + 25 \\
&= 1275
\end{aligned}$$

PMOO		ARB_MUX
s_3	$\alpha_{s_3}^{x'f_2}$	$= \gamma_{0,0}$
	$\alpha_{s_3}^{xf_2}$	$= \gamma_{0,0}$
s_4	$\alpha_{s_4}^{x'f_2}$	$= \gamma_{0,0}$
	$\alpha_{s_4}^{xf_2}$	$= \gamma_{0,0}$
s_5	$\alpha_{s_5}^{x'f_2}$	$= \gamma_{10,550}$
	$\alpha_{s_5}^{xf_2}$	$= \gamma_{10,550}$
s_6	$\alpha_{s_6}^{x'f_2}$	$= \gamma_{0,0}$
	$\alpha_{s_6}^{xf_2}$	$= \gamma_{10,xxx}$
$\beta_{e2e}^{l.o.f_2} = \beta_{R_{e2e}^{l.o.f_2}, T_{e2e}^{l.o.f_2}}$	$R_{e2e}^{l.o.f_2} = \bigwedge_{i \in \{3,4,5,6\}} (R_{s_i} - r_{s_i}^{xf_2})$	$= (20 - 0) \wedge (20 - 0) \wedge (20 - 10) \wedge (20 - 10)$
		$= \frac{10}{5}$
	$T_{e2e}^{l.o.f_2} = \sum_{i \in \{3,4,5,6\}} T_{s_i} + \frac{\sum_{i \in \{3,4,5,6\}} (b_{s_i}^{x'f_2} + r_{s_i}^{xf_2} \cdot T_{s_i})}{R_{e2e}^{l.o.f_2}}$	$= 20 + 20 + 20 + 20 + \frac{0 + 0 \cdot 20 + 0 + 0 \cdot 20 + 550 + 10 \cdot 20 + 0 + 10 \cdot 20}{5}$
	$=$	$= 80 + \frac{950}{10}$
		$= 175$
		$= \beta_{10,175}$
D^{f_2}		$\beta_{e2e}^{l.o.f_2} = b^{f_2}$ $10 \cdot [t - 175]^+ = 25$ $t = 177\frac{1}{2}$
B^{f_2}		$\alpha^{f_2}(T_{e2e}^{l.o.f_2}) = 5 \cdot 175 + 25$ $= 900$