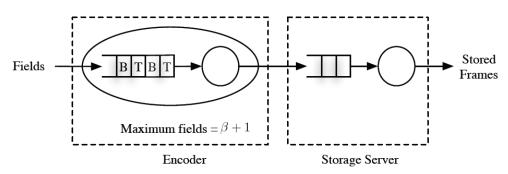
## **Project 1**



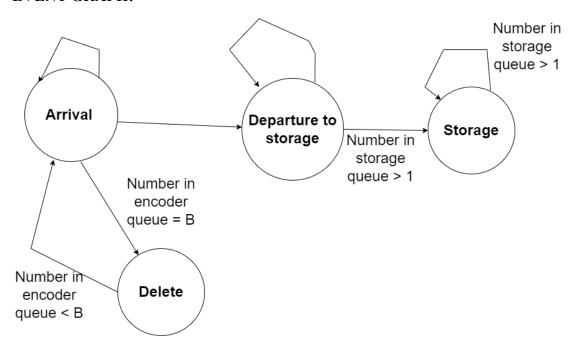
#### 組員:

廖振涵 N26102018

邱偉城 N26101884

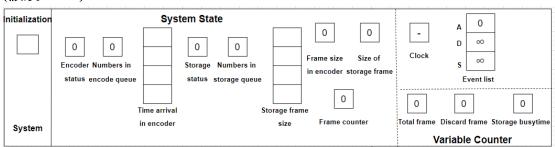
李立恆 N26100773

#### **EVENT GRAPH:**



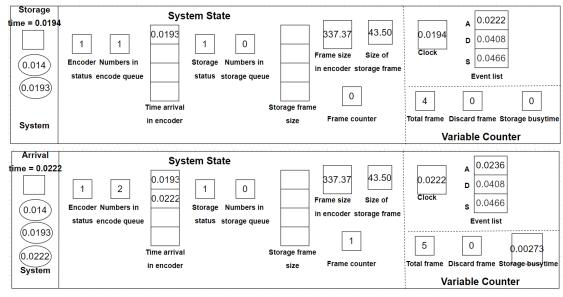
#### **Simulation:**

#### (假設 B = 4)



	Svs	tem State				0.0070	
time = 0	5,1			07.00	0	A 0.0073	
	1 0	0 0		97.68		D 0.0061	
			Fi	ame size Size of	Clock	. ∞	
(0)	Encoder Numbers in	Storage Numbers in	in	encoder storage frame		5	
	status encode queue	status storage queue				Event list	
1				1			
	Time arrival	9	Storage frame		_1_	0	0
System	in encoder		size	Frame counter	Total frame Dis	scard frame Stora	ge busytime
0,000					Var	iable Counter	
Departure							1
time = 0.0061	Sys	tem State				A 0.0073	
			97.68	97.68	0.0061	D ∞	
	0 0	0 1			Clock	b   33	
	Encoder Numbers in	Storage Numbers in		rame size Size of	Olook	s <sup>∞</sup>	
	status encode queue	status storage queue	l Ir	n encoder storage frame		Event list	
	 Time arrival		Storage frame	1	1	0	0
	in encoder		size	Frame counter	Total frame Di	scard frame Stora	ge busytime
System	in checuer		OIL0				
					var	iable Counte	
Arrival	Svs	tem State				0.014	
time = 0.0073	3		07.00	101.00	0.0070	A 0.014	
	1 0	0 1	97.68	191.93	0.0073	D 0.0194	
			F	rame size Size of	Clock	. ∞	
(0.0073)	Encoder Numbers in	Storage Numbers in	i	n encoder storage frame		s	
	status encode queue	status storage queue				Event list	
				0	2	0	0
	Time arrival		Storage frame				
System	in encoder		size	Frame counter	Total frame Di	iscard frame Stora	ige busytime
, , , , , , , ,					Vai	riable Counte	r
Arrival		1aua C4a4a					
time = 0.014	Sys	tem State				A 0.0193	
	0.014		97.68	191.93	0.014	D 0.0194	
		0 1		rame size Size of	Clock	<u> </u>	
(0.0073)	Encoder Numbers in	Storage Numbers in		encoder storage frame		s 🔍	
0.044	status encode queue	status storage queue				Event list	
	status choode quede						
(0.014)	Status Chicode queue			1			
0.014	Time arrival	:	Storage frame	1	3	0	0
		!	Storage frame	1 Frame counter		0 scard frame Stora	
System	Time arrival	:	_		Total frame Di		ge busytime
	Time arrival in encoder		_		Total frame Di	scard frame Stora	ge busytime
System	Time arrival in encoder	tem State	_	Frame counter	Total frame Di	scard frame Stora	ge busytime
System	Time arrival in encoder  Sys	tem State	_		Total frame Di	scard frame Stora	ge busytime
System	Time arrival in encoder  Sys  0.014		97.68	Frame counter	Total frame Di Var	scard frame Stora	ge busytime
System	Time arrival in encoder  Sys	tem State	97.68	Frame counter	Total frame Di	scard frame Stora	ge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014 0.0193	tem State	97.68	Frame counter	Total frame Di Var	scard frame Stora	ge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014 0.0193  Encoder Numbers in	tem State  0 1 Storage Numbers in	97.68	Frame counter  191.93  output  191.93  output  191.93  output  output	Var  0.0193 Clock	scard frame Stora riable Counte  A 0.0222 D 0.0194 S © Event list	ge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014 0.0193  Encoder Numbers in	tem State  0 1  Storage Numbers in status storage queue	97.68 F. ir	Frame counter	Total frame Di Var	scard frame Stora	ge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014 0.0193  Encoder Numbers in status encode queue	tem State  0 1  Storage Numbers in status storage queue	97.68	Frame counter  191.93  output  191.93  output  191.93  output  output	Total frame Di Var  0.0193 Clock	scard frame Stora riable Counte  A 0.0222 D 0.0194 S © Event list	ge busytime r
System  Arrival time = 0.0193  0.0073  0.014	Time arrival in encoder  Sys  0.014 0.0193  Encoder Numbers in status encode queue	tem State  0 1  Storage Numbers in status storage queue	97.68 Find the storage frame	Frame counter  191.93  0  rame size Size of a encoder storage frame	Total frame Di Var  0.0193 Clock  Total frame Di	scard frame Stora	ge busytime r 0 uge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014 0.0193  Encoder Numbers in status encode queue	tem State  0 1  Storage Numbers in status storage queue	97.68 Find the storage frame	Frame counter  191.93  0  rame size Size of a encoder storage frame	Total frame Di Var  0.0193 Clock  Total frame Di	scard frame Stora	ge busytime r 0 uge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014 0.0193 Encoder Numbers in status encode queue  Time arrival in encoder	tem State  0 1  Storage Numbers in status storage queue	97.68 Find the storage frame	Frame counter  191.93  0  rame size Size of a encoder storage frame	Total frame Di Var  0.0193 Clock  Total frame Di	scard frame Stora riable Counte  A 0.0222 D 0.0194 S © Event list  O scard frame Stora	ge busytime r 0 uge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014 0.0193 Encoder Numbers in status encode queue  Time arrival in encoder	tem State  0 1  Storage Numbers in status storage queue	97.68 Find the storage frame	Frame counter  191.93  O arme size Size of a encoder storage frame  O Frame counter	Total frame Di Var  0.0193 Clock  4 Total frame Di Var	A 0.0222 D 0.0194 S Event list  0 escard frame Stora	ge busytime r 0 uge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014 0.0193 Encoder Numbers in status encode queue  Time arrival in encoder	tem State  0 1  Storage Numbers in status storage queue	97.68  Storage frame size	Frame counter  191.93 0 rame size Size of a encoder storage frame 0 Frame counter	Total frame Di Var  0.0193 Clock  4 Total frame Di Var	scard frame Stora riable Counte  A 0.0222 D 0.0194 S © Event list  O scard frame Stora	ge busytime r 0 uge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014 0.0193 Encoder Numbers in status encode queue  Time arrival in encoder  Sys 0.0193	tem State  0 1 Storage Numbers in status storage queue	97.68 Firstorage frame size	Frame counter  191.93 0 rame size Size of a encoder storage frame 0 Frame counter  337.37 0 rame size Size of	Total frame Di Var  0.0193 Clock  4 Total frame Di Var	A 0.0222 D 0.0194 S Event list  0 escard frame Stora	ge busytime r 0 uge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014 0.0193 Encoder Numbers in status encode queue  Time arrival in encoder  Sys  0.0193  1 1 Encoder Numbers in	tem State  0 1 Storage Numbers in status storage queue  tem State  0 2 Storage Numbers in	97.68 Firstorage frame size	Frame counter  191.93 0 rame size Size of a encoder storage frame 0 Frame counter	Total frame Di Var  0.0193 Clock  4 Total frame Di Var	Event list  A 0.0222 D 0.0194 S © Event list  A 0.0222 D 0.0408 S 0.0194	ge busytime r 0 uge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014 0.0193  Encoder Numbers in status encode queue  Time arrival in encoder  Sys  0.0193	tem State  0 1 Storage Numbers in status storage queue	97.68 Firstorage frame size	Frame counter  191.93 0 rame size Size of a encoder storage frame  0 Frame counter  337.37 0 rame size Size of a encoder storage frame	Total frame Di Var  0.0193 Clock  4 Total frame Di Var	A 0.0222 D 0.0194 S Event list  Ciable Counte  A 0.0222 D 0.0408 D 0.0404	ge busytime r 0 uge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014  0.0193  Encoder Numbers in status encode queue  Time arrival in encoder  Sys  0.0193	tem State  0 1 Storage Numbers in status storage queue  tem State  0 2 Storage Numbers in status storage queue	97.68 F. ir Storage frame size	Frame counter  191.93 0 rame size Size of a encoder storage frame 0 Frame counter  337.37 0 rame size Size of	Total frame Di Var  0.0193 Clock  4 Total frame Di Var	Event list  A 0.0222 D 0.0194 S © Event list  A 0.0222 D 0.0408 S 0.0194	ge busytime r 0 uge busytime
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014  0.0193  Encoder Numbers in status encode queue  Time arrival in encoder  Sys  1 1 0  Encoder Numbers in status encode queue  Time arrival	tem State  0 1 Storage Numbers in status storage queue  tem State  0 2 Storage Numbers in status storage queue	97.68 Fright In Storage frame size	Frame counter  191.93  0  rame size Size of a encoder storage frame  0  Frame counter  337.37  0  tame size Size of a encoder storage frame	Total frame Di Var  0.0193 Clock  4 Total frame Di Var  0.0194 Clock	scard frame Stora riable Counte  A 0.0222 D 0.0194 S © Event list  O scard frame Stora riable Counte  A 0.0222 D 0.0408 S 0.0194 Event list	ge busytime  T  O  Ige busytime  T
System  Arrival time = 0.0193	Time arrival in encoder  Sys  0.014  0.0193  Encoder Numbers in status encode queue  Time arrival in encoder  Sys  0.0193	tem State  0 1 Storage Numbers in status storage queue  tem State  0 2 Storage Numbers in status storage queue	97.68 F. ir Storage frame size	Frame counter  191.93 0 rame size Size of a encoder storage frame  0 Frame counter  337.37 0 rame size Size of a encoder storage frame	Total frame Di Var  0.0193 Clock  4 Total frame Di Var  0.0194 Clock  1 Total frame Di	A 0.0222 D 0.0194 S 0.0222 D 0.0194 S 0.0222 D 0.0408 S 0.0194 Event list	ge busytime  T  O  ge busytime  T  O  ge busytime

Top frame 跟 bottom frame 都進到 storage 的 queue 所以可以開始 storage

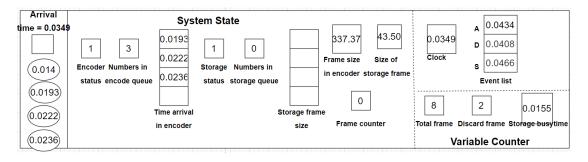


•••••

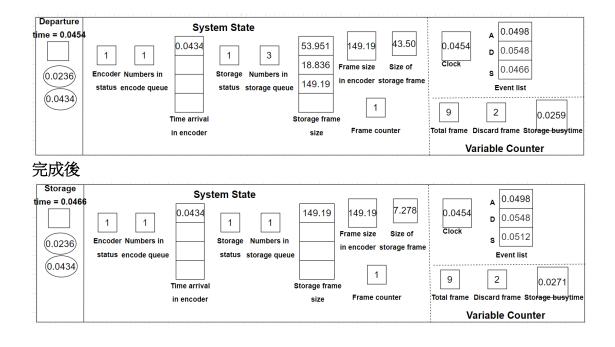
#### 一直到 encoder 的 queue 填滿

Arrival time = 0.027  0.014  0.0193	System State  0.0193 0.0222 Encoder Numbers in status encode queue  0.0236 Storage Numbers in status storage queue	e	337.37 43.50  Frame size Size of in encoder storage frame	0.027 Clock	A 0.0349 D 0.0408 S 0.0466 Event list
0.0222)	Time arrival	Storage fra		7	0 0.00768
0.0236	in encoder	size	Frame counter		Discard frame Sto <del>rage busy</del> time ariable Counter
0.0271)					

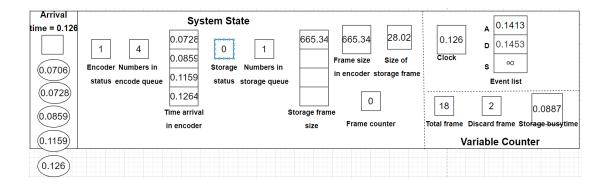
# 第一種 queue 滿了的 case: Bottom frame 來但是 queue 滿了所以 queue 裡面的 top frame 也要刪



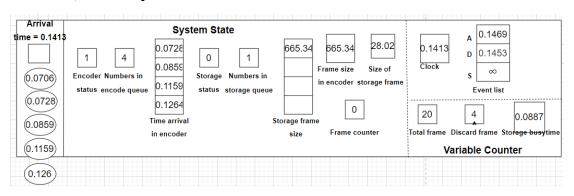
# 第一個 top, bottom frame Storage 完成 完成前



### 一直到 encoder 的 queue 再一次填滿



第二種 queue 滿了的 case : top frame 來但是 queue 滿了所以 top frame 要 刪,他之後的 bottom frame 也要刪,所以 frame counter 設 0 代表下一個進來的 frame 是新的 top frame

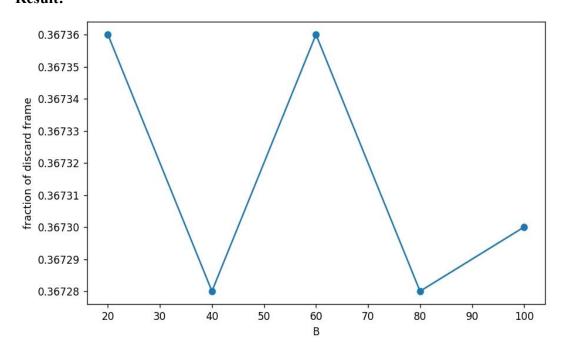


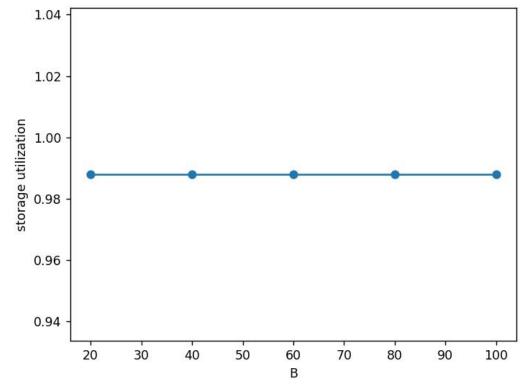
......一直到結束

**Input parameter:** 

ENCODE\_RATE 15800 fobs / sec STORAGE\_RATE 1600 fobs / sec STORAGE\_QUEUE\_FRAME\_SIZE[100000000] END TIME = 28800 sec ALPHA = 0.1

(1)
MEAN\_INTERARRIVAL = 0.008 sec
MEAN\_SIZEOF\_FRAME = 200 fobs
Result:





(2)
MEAN\_INTERARRIVAL = 0.004 sec
MEAN\_SIZEOF\_FRAME = 450 fobs
Result:

