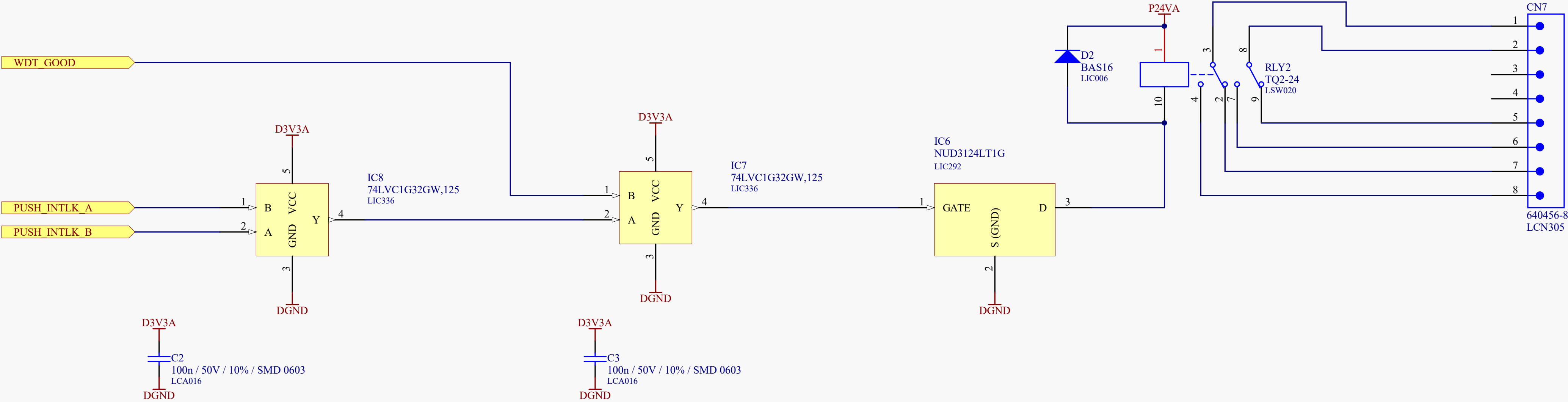

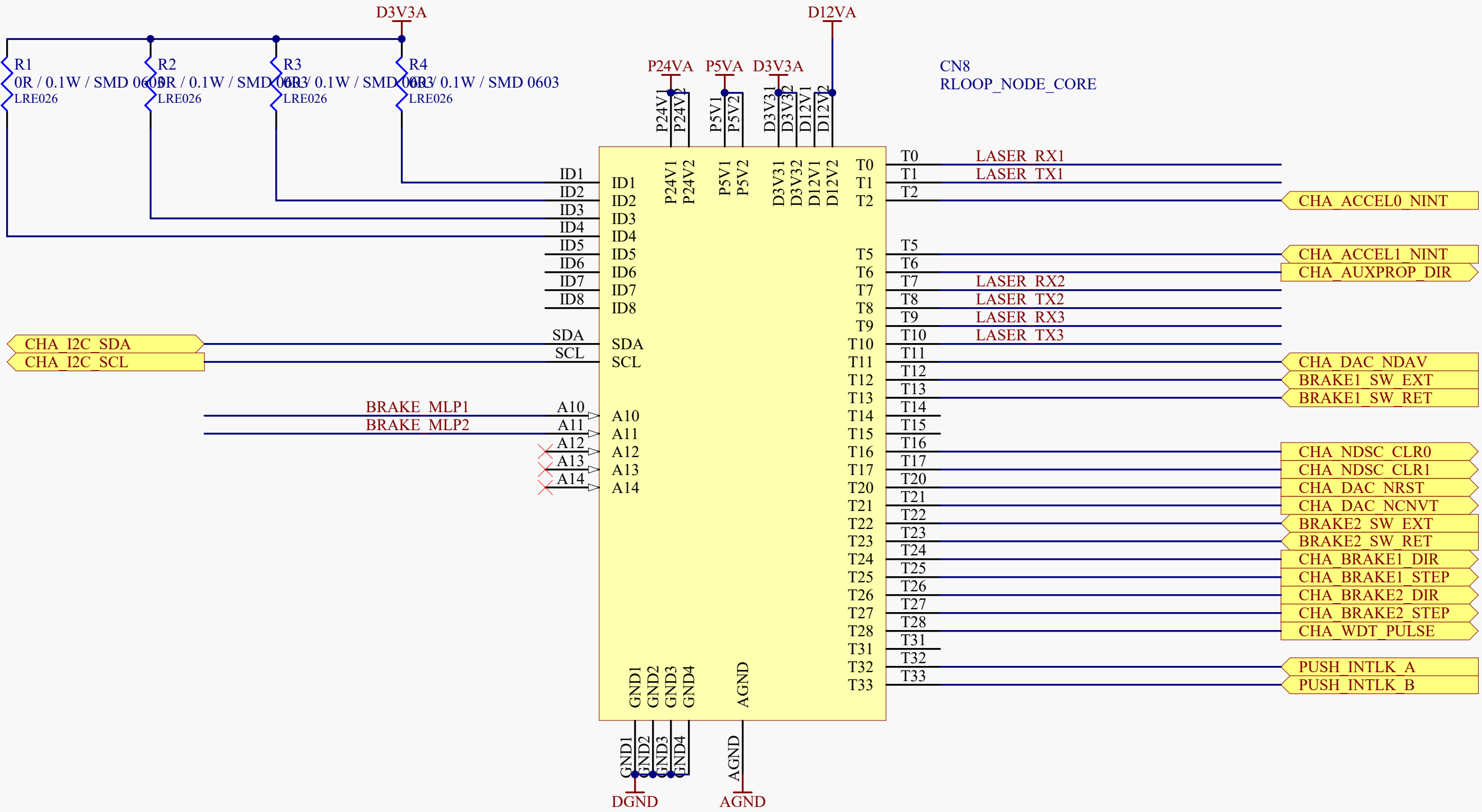
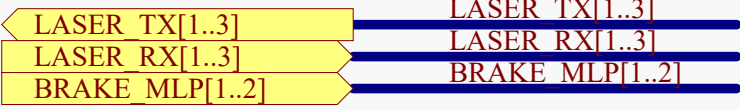

  <a href="http://rloop.org">http://rloop.org</a>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control		
	Aux Prop Interface		
Size	Drawing File Name		Revision
A3	LPCB220 - AUXPROP INTERFACE.SchDoc		1
Scale			Sheet Details
N.T.S			Sheet: 2 Of: 18



 <a href="http://rloop.org">http://rloop.org</a>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control Brake Failsafe Selection		
Size	Drawing File Name		Revision
A3	LPCB220 - BRAKE FAILSAFE.SchDoc		1
Scale		Sheet Details	
N.T.S		Sheet: 3 Of: 18	



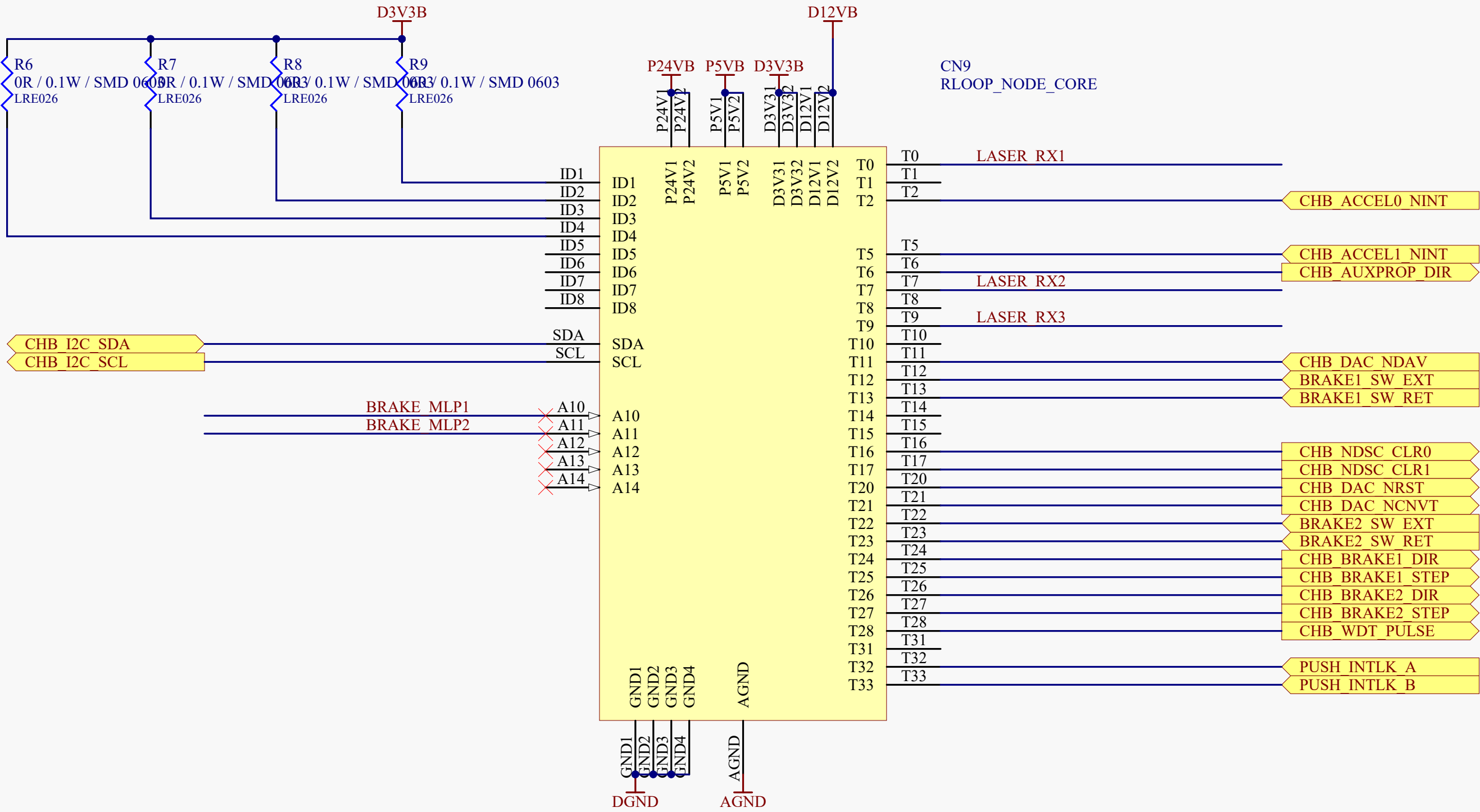
  <div><a href="http://rloop.org">http://rloop.org</a></div>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control		
	Node Core A		
Size	Drawing File Name		Revision
A3	LPCB220 - CORE A.SchDoc		1
Scale		Sheet Details	
N.T.S		Sheet: 4 Of: 18	

LASER\_RX[1..3]

BRAKE\_MLP[1..2]

LASER\_RX[1..3]

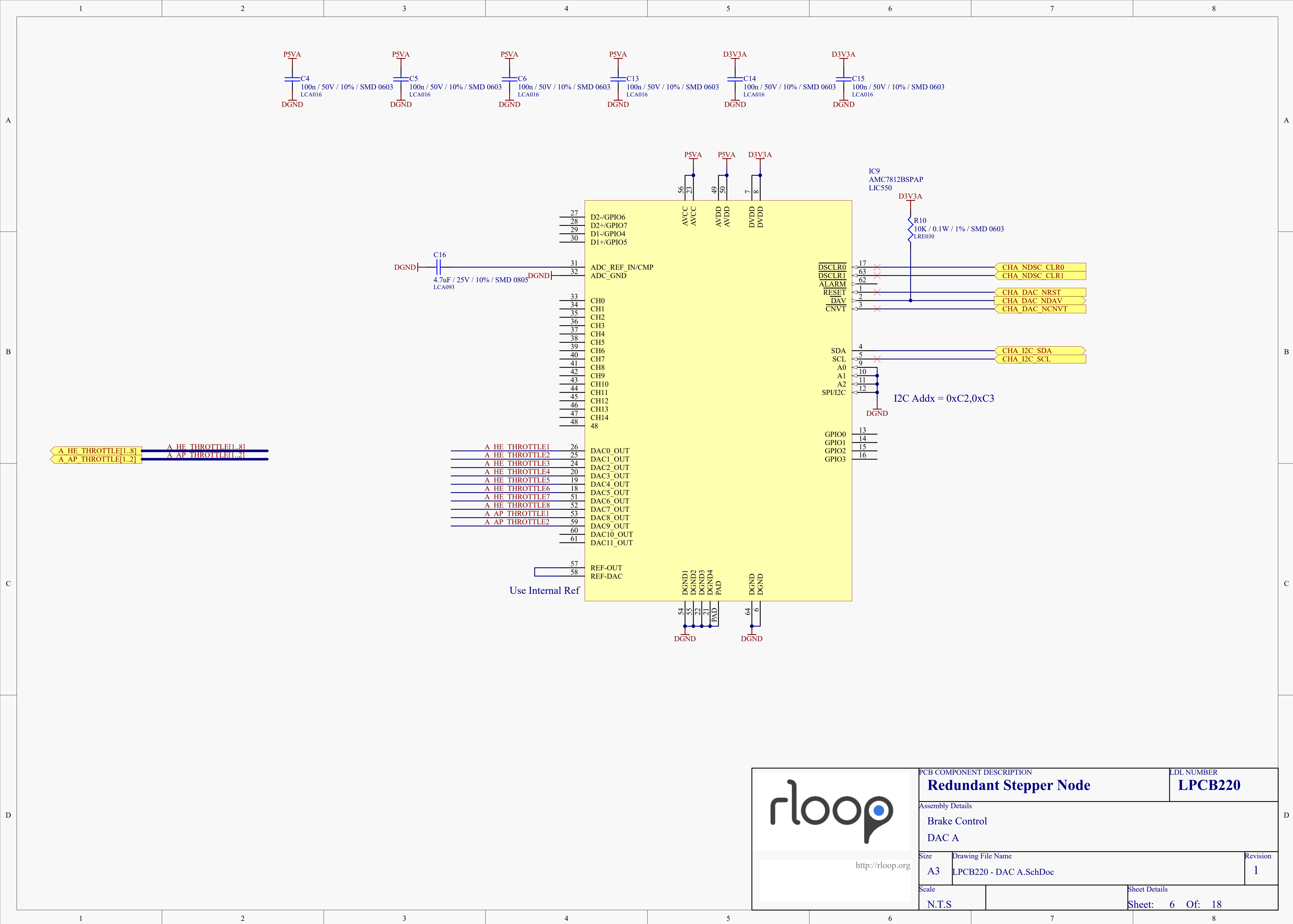
BRAKE\_MLP[1..2]

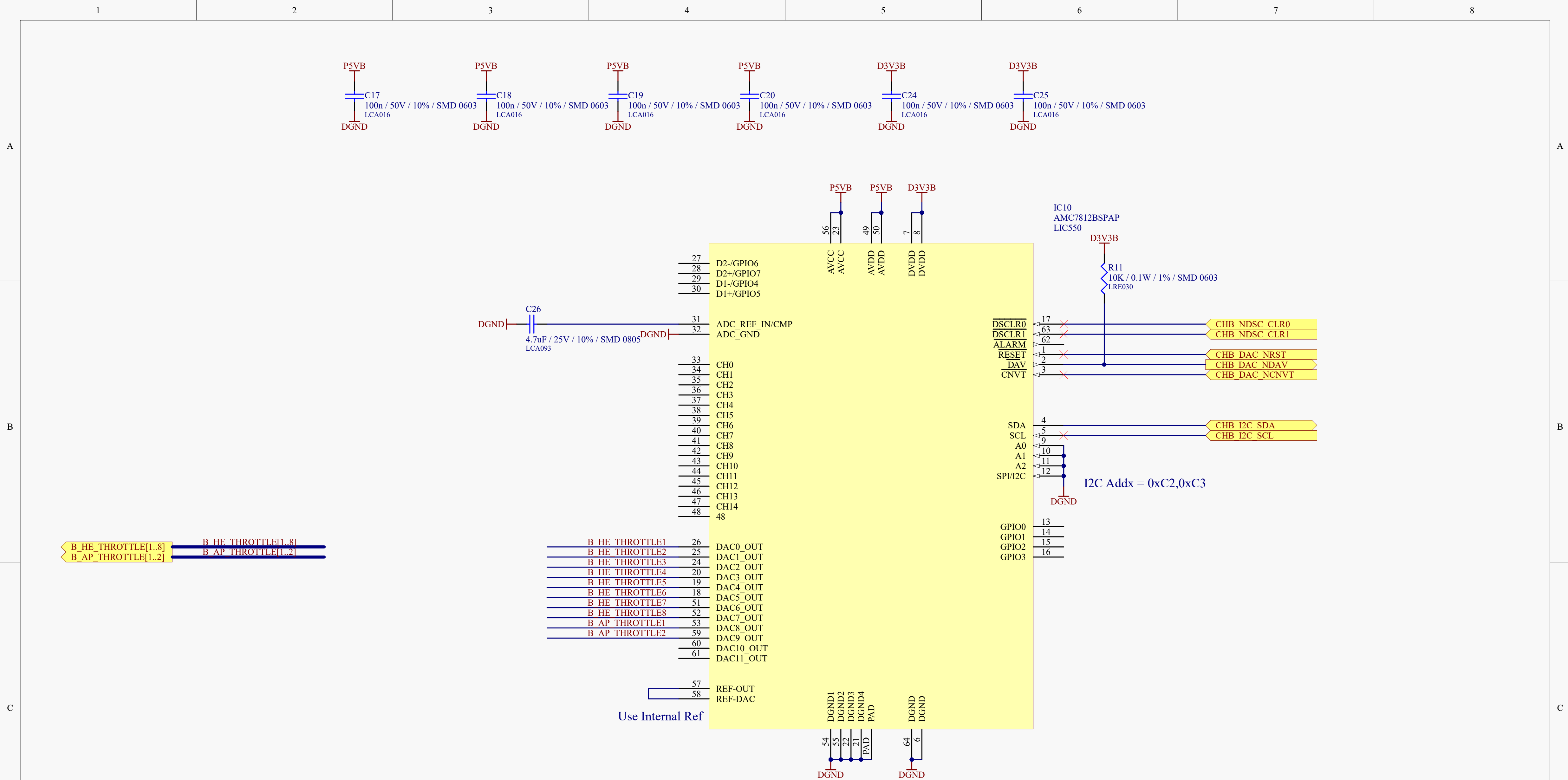



http://rloop.org

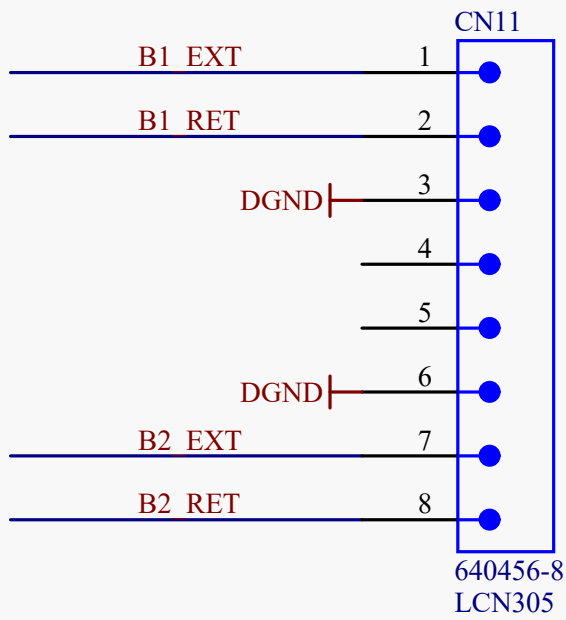
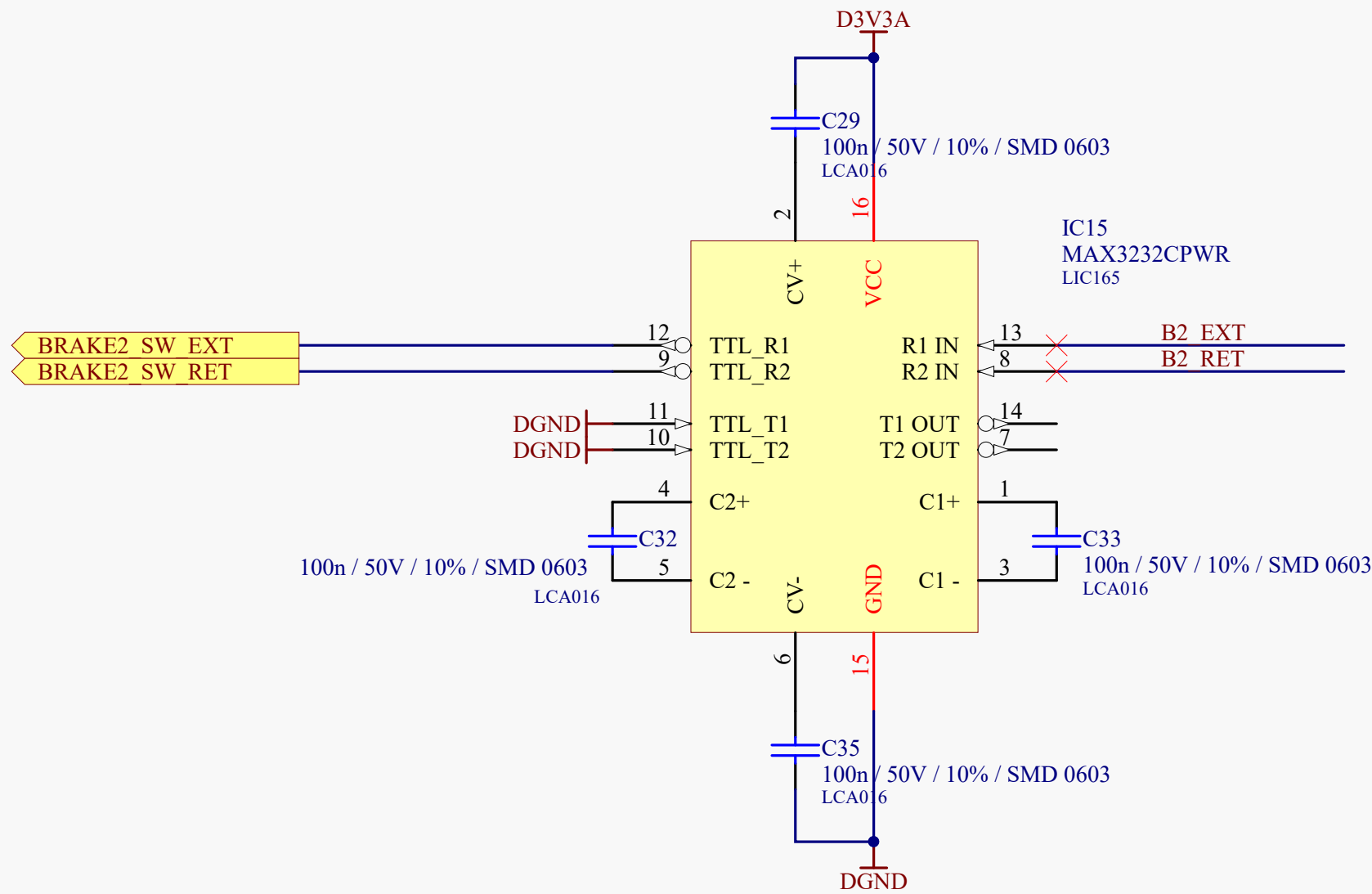
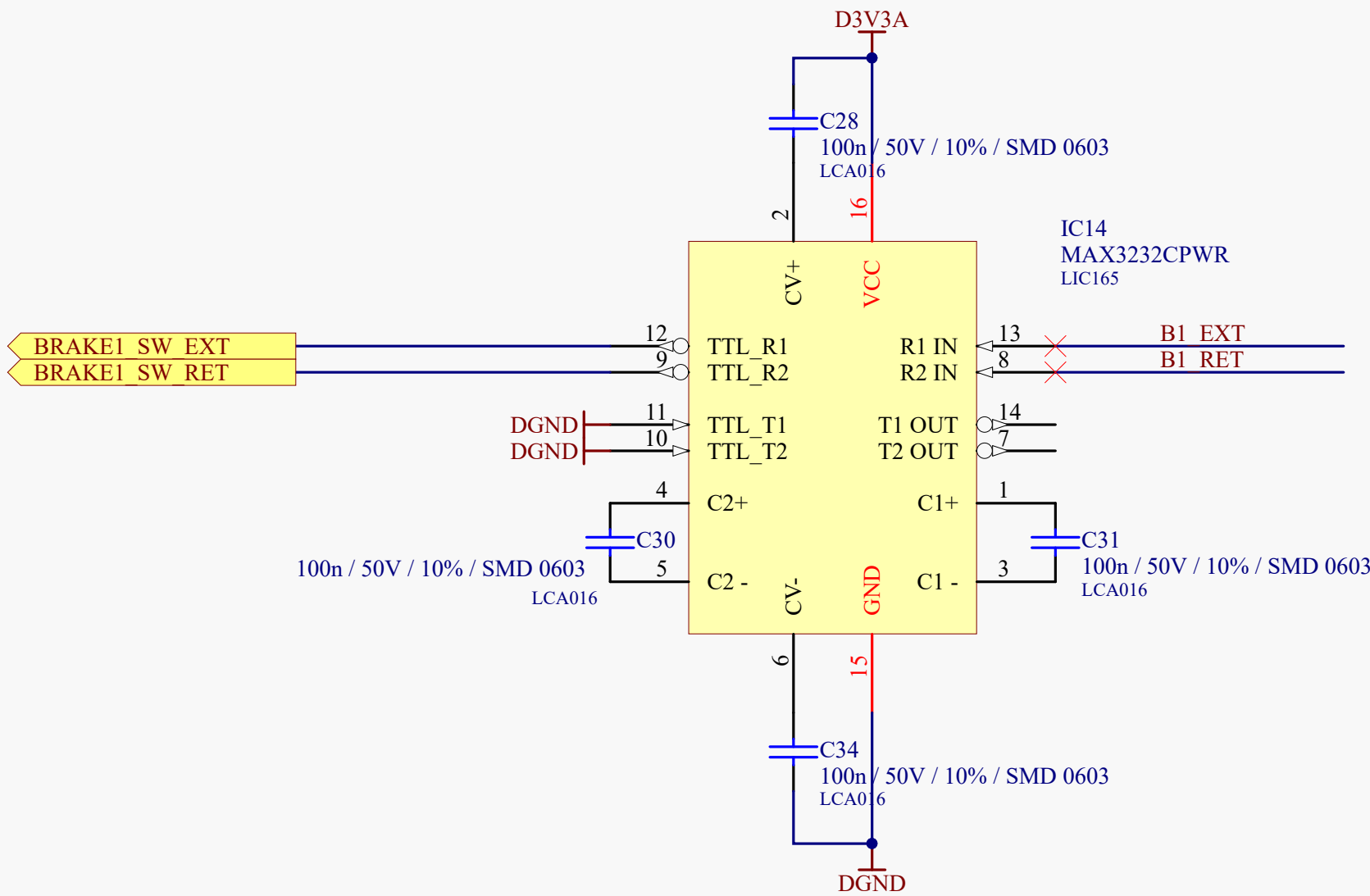
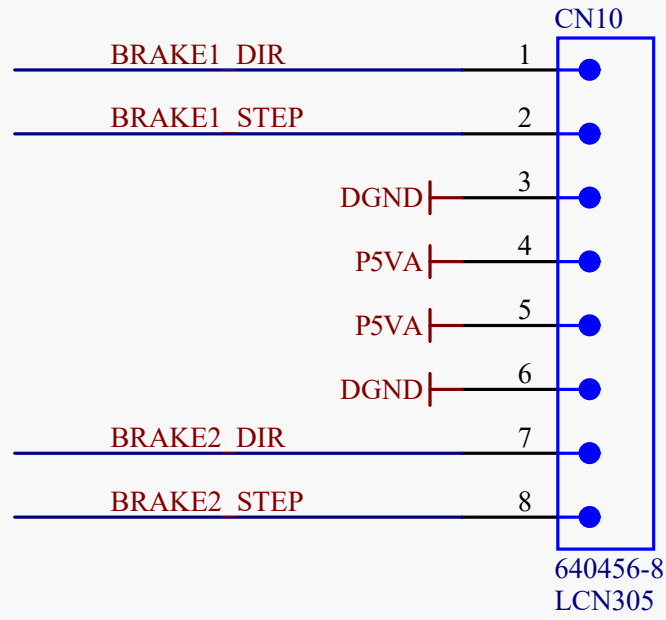
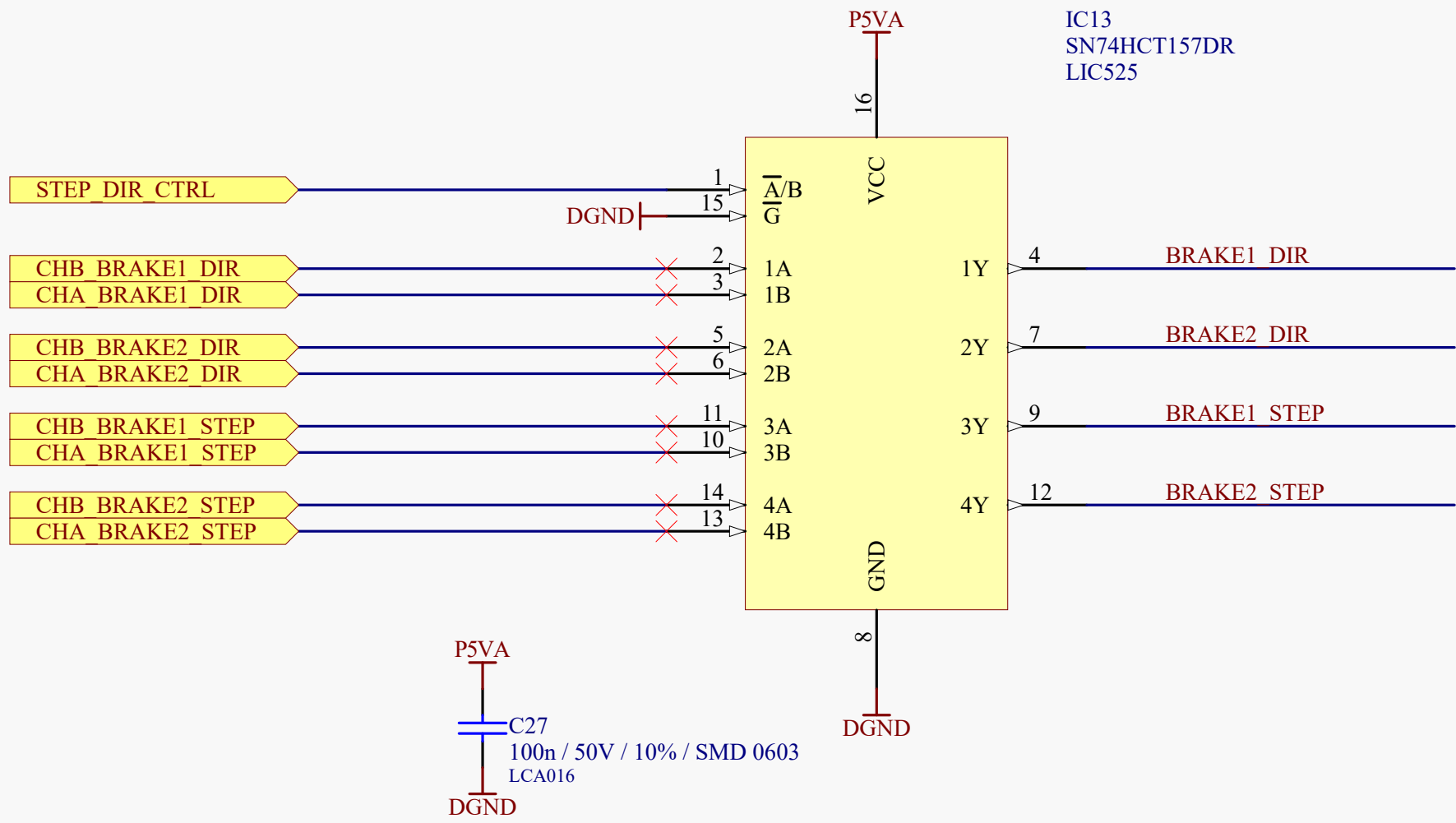
PCB COMPONENT DESCRIPTION		LDL NUMBER
Redundant Stepper Node		LPCB220
Assembly Details		
Brake Control Node Core B		
Size	Drawing File Name	Revision
A3	LPCB220 - CORE B.SchDoc	1
Scale		Sheet Details
N.T.S		Sheet: 5 Of: 18








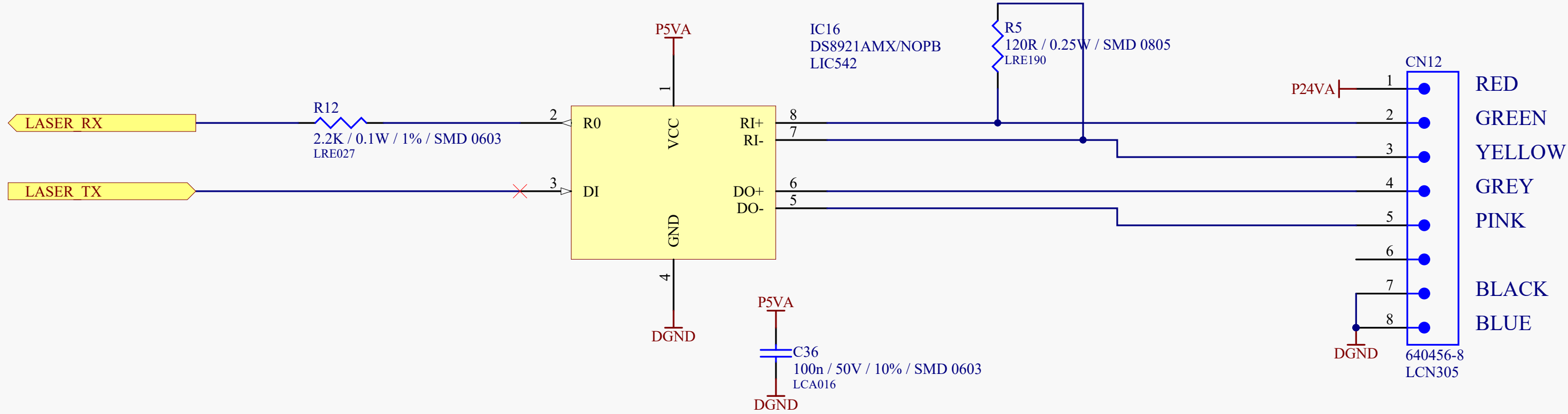
 <a href="http://rloop.org">http://rloop.org</a>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control DAC B		
Size	Drawing File Name	Revision	
A3	LPCB220 - DAC B.SchDoc	1	
Scale		Sheet Details	
N.T.S		Sheet: 7 Of: 18	




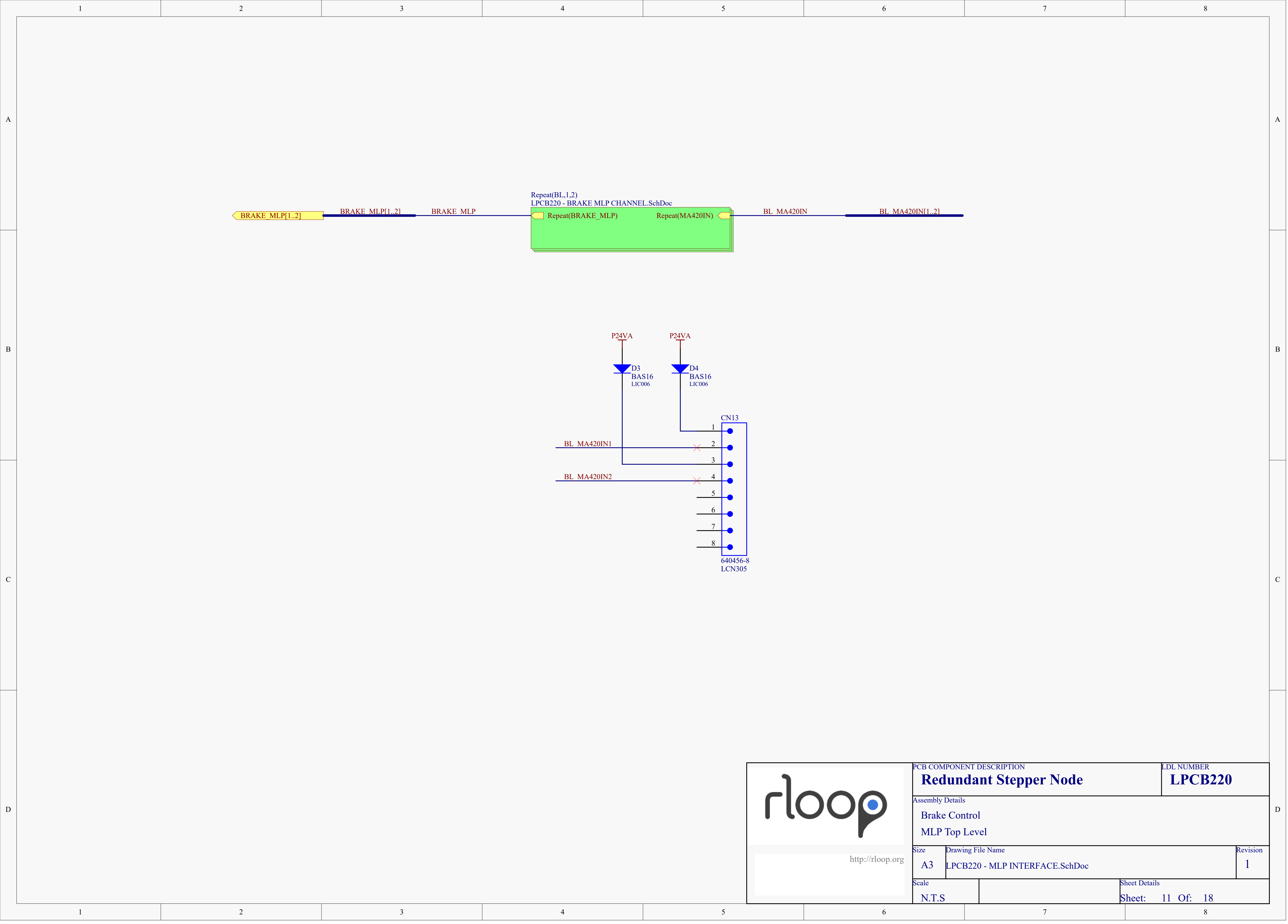
  <div><a href="http://rloop.org">http://rloop.org</a></div>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control		
	G210 Multiplexer Interface		
	Size	Drawing File Name	Revision
A3	LPCB220 - G210X MUX INTERFACE.SchDoc	1	
Scale		Sheet Details	
N.T.S		Sheet: 8 Of: 18	




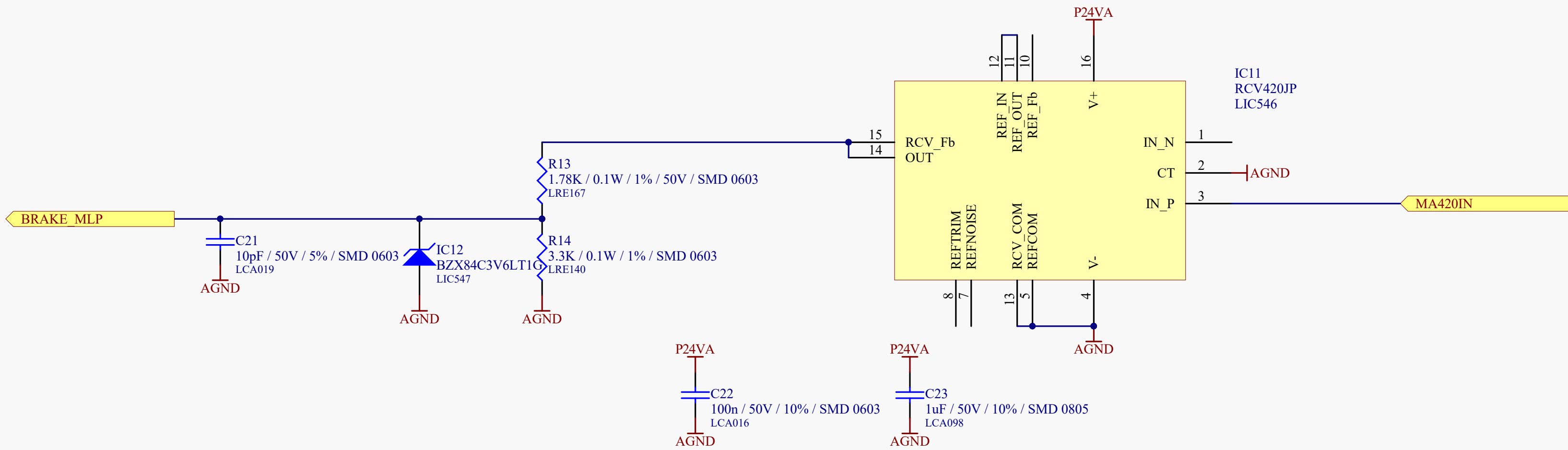





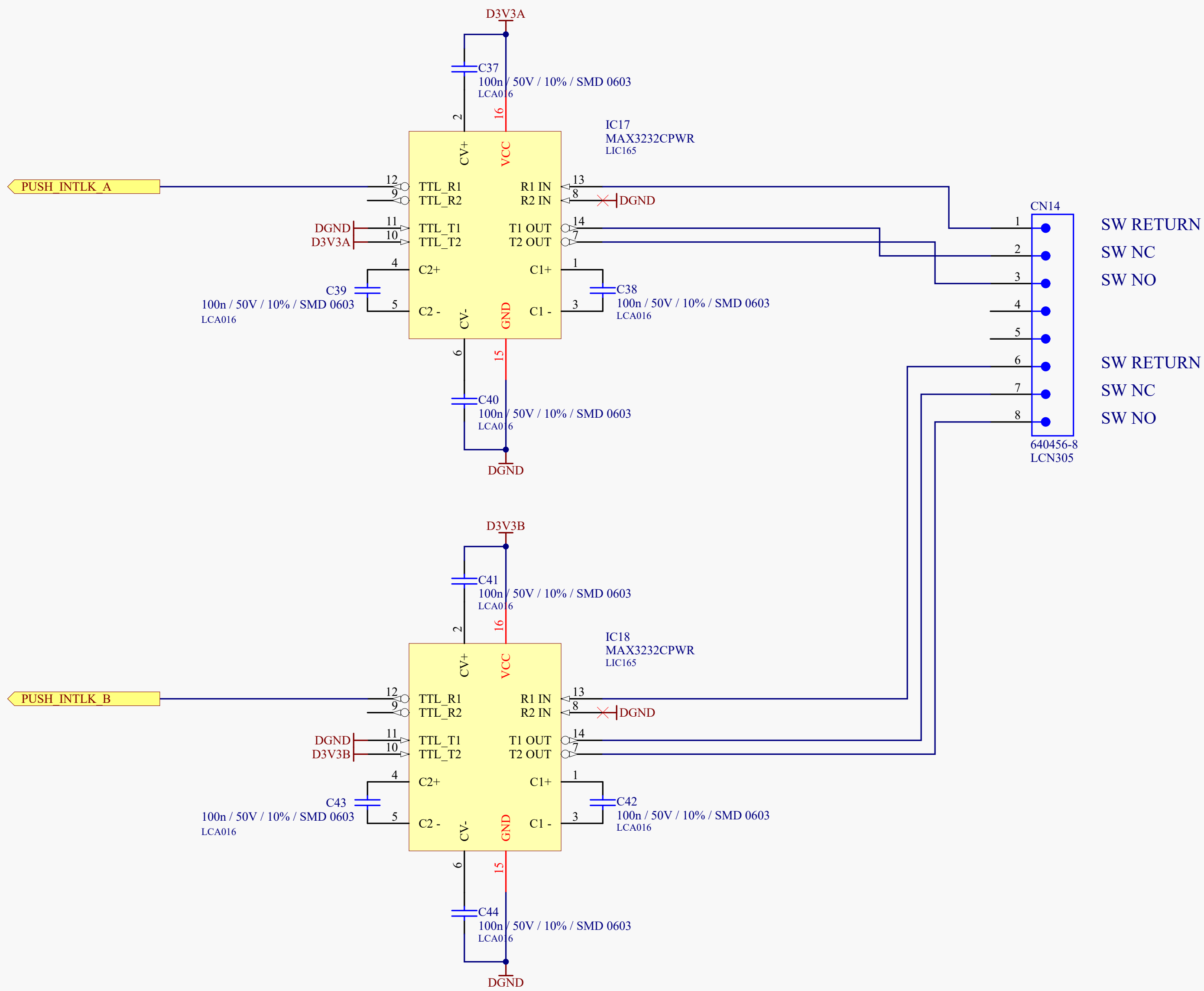
  <a href="http://rloop.org">http://rloop.org</a>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control		
	Single I Beam Channel		
	Size	Drawing File Name	Revision
A3	LPCB220 - LASER CHANNEL.SchDoc	1	
Scale		Sheet Details	
N.T.S		Sheet: 10 Of: 18	




  <div><a href="http://rloop.org">http://rloop.org</a></div>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control		
	MLP Top Level		
Size	Drawing File Name		Revision
A3	LPCB220 - MLP INTERFACE.SchDoc		1
Scale			Sheet Details
N.T.S			Sheet: 11 Of: 18

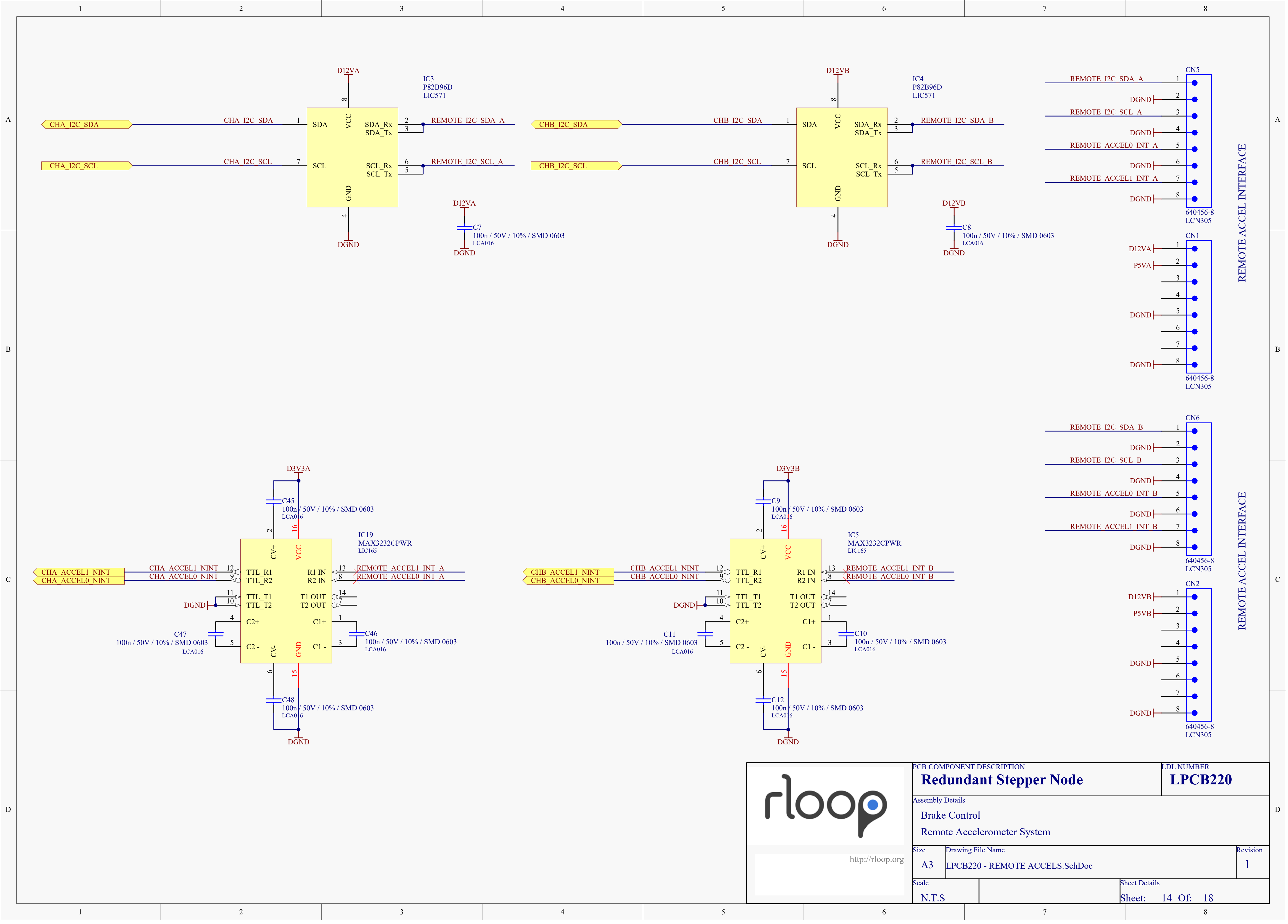


 <a href="http://rloop.org">http://rloop.org</a>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control MLP Input Channel		
Size	Drawing File Name		Revision
A3	LPCB220 - BRAKE MLP CHANNEL.SchDoc		1
Scale		Sheet Details	
N.T.S		Sheet: 12 Of: 18	



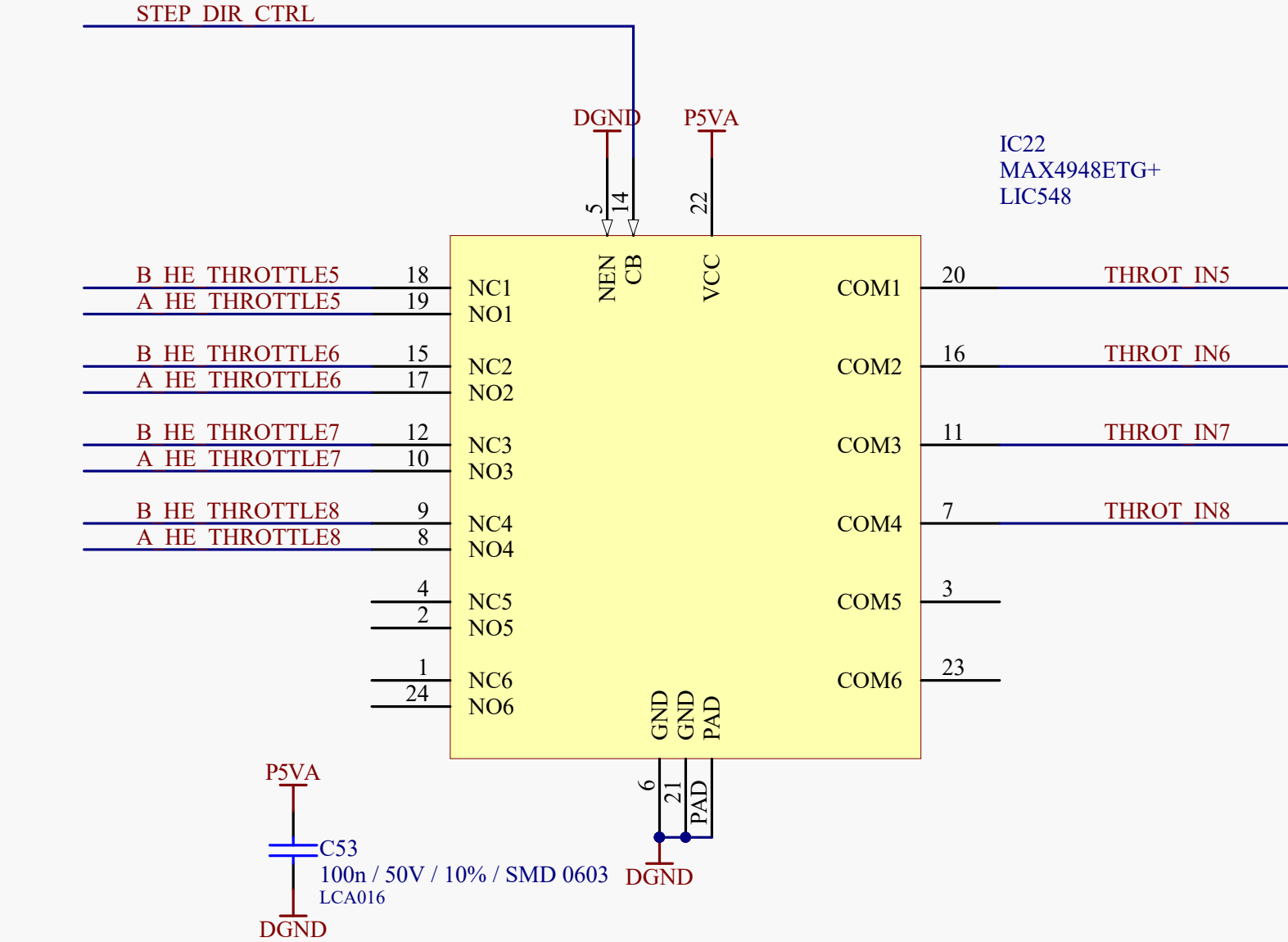
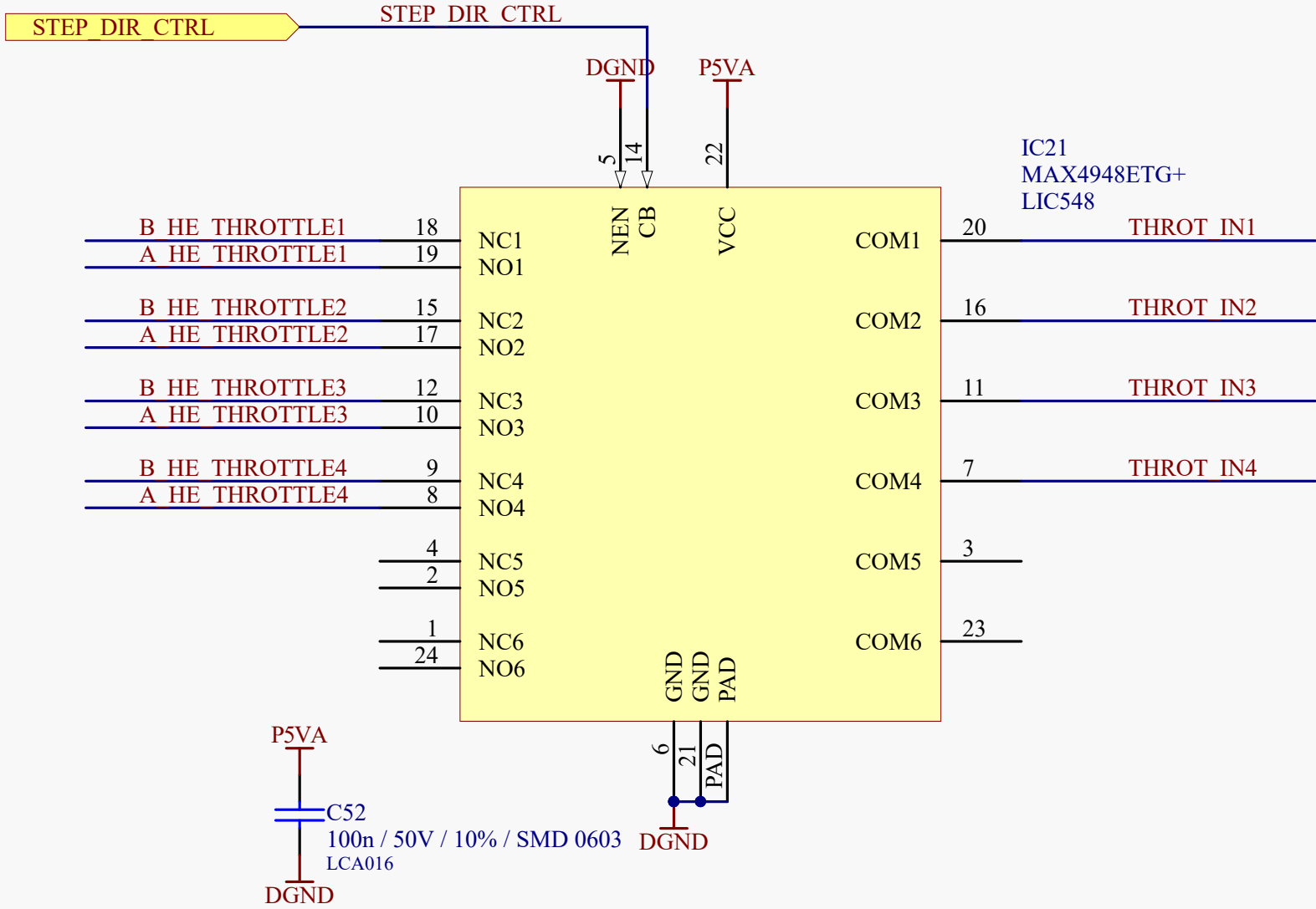
  <a href="http://rloop.org">http://rloop.org</a>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control		
	Pusher Interlock System		
Size	Drawing File Name		Revision
A3	LPCB220 - PUSHER INTERLOCK.SchDoc		1
Scale		Sheet Details	
N.T.S		Sheet: 13 Of: 18	




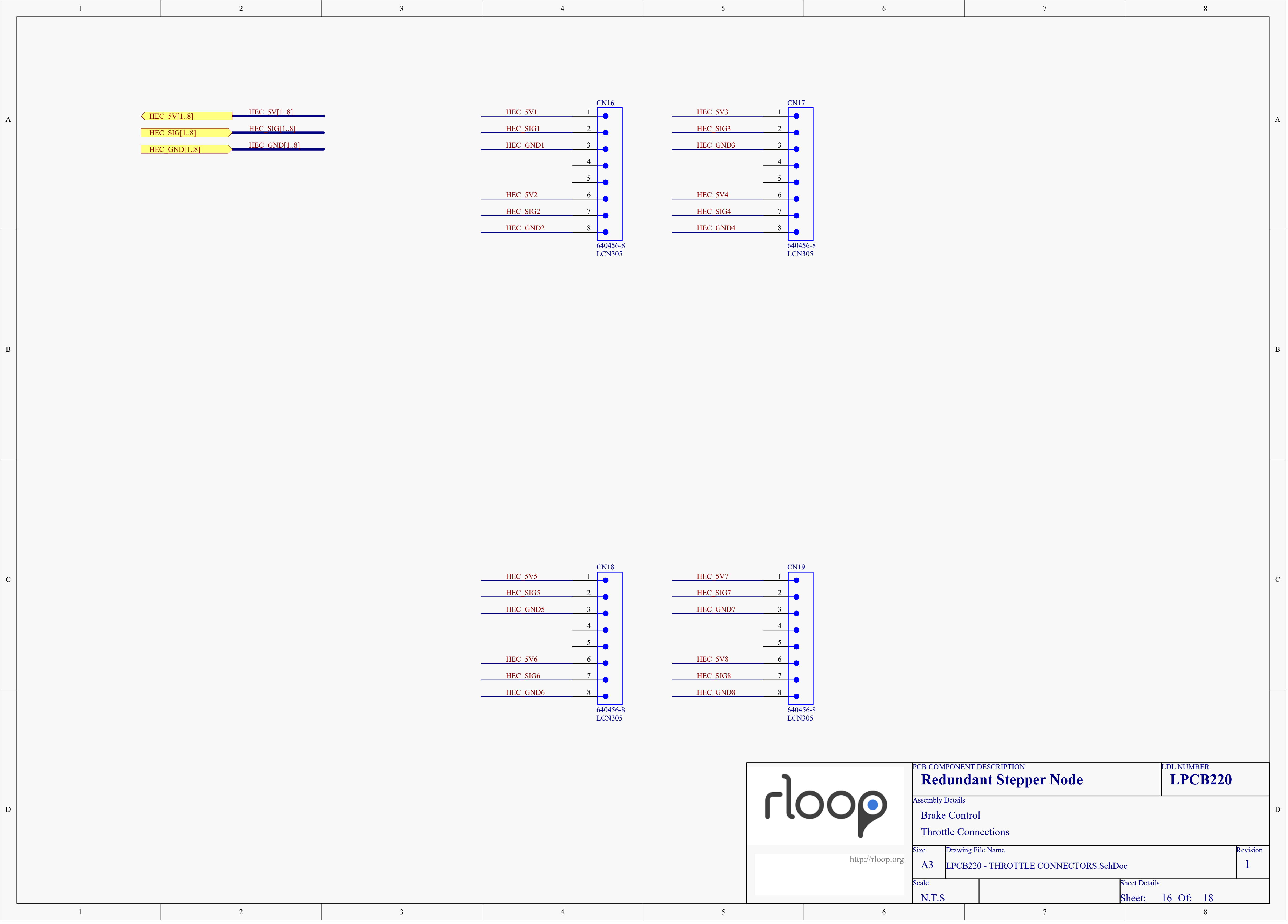


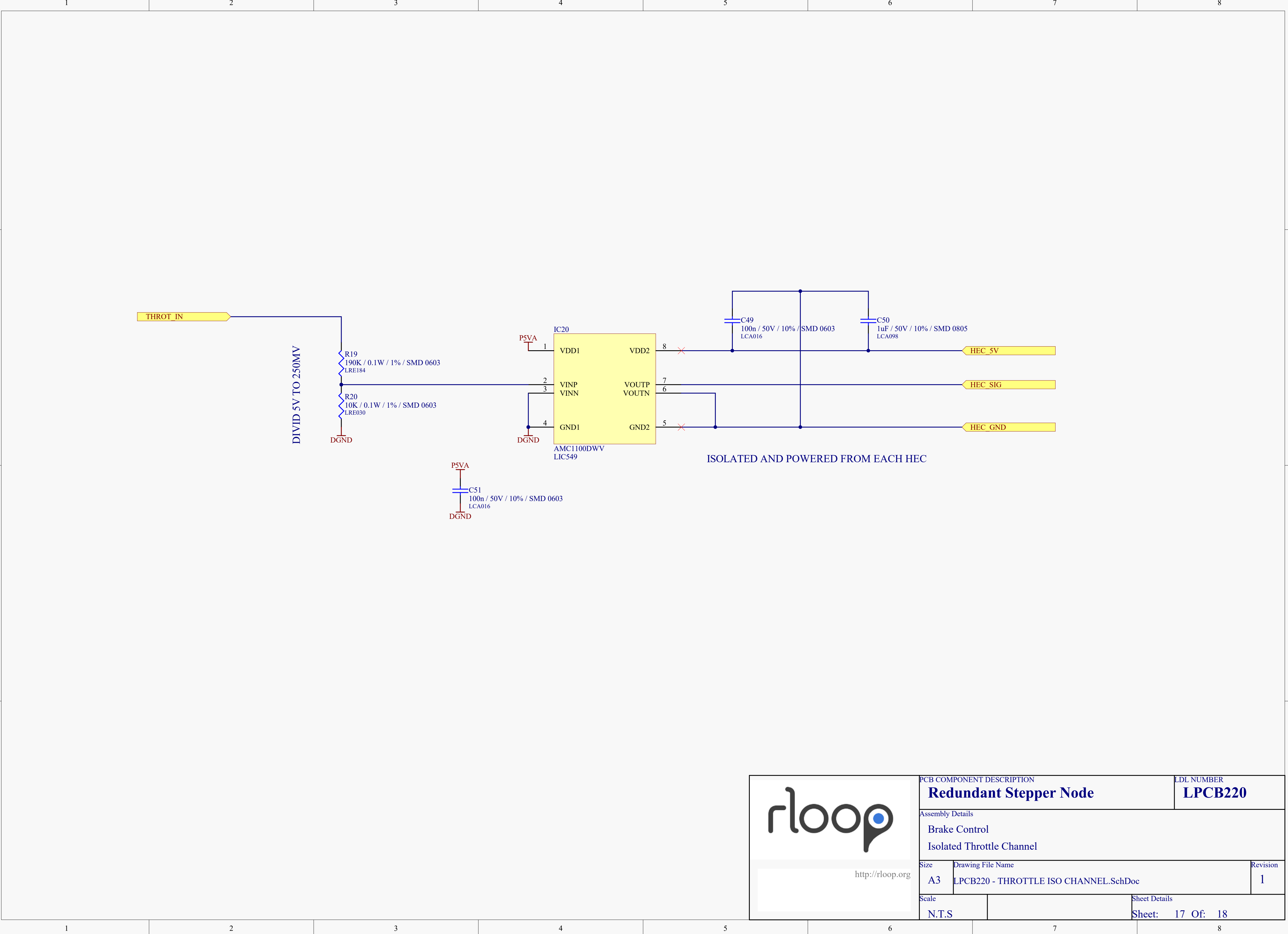
A HE THROTTLE[1..8]  
B HE THROTTLE[1..8]


HIGH = CHANNEL A



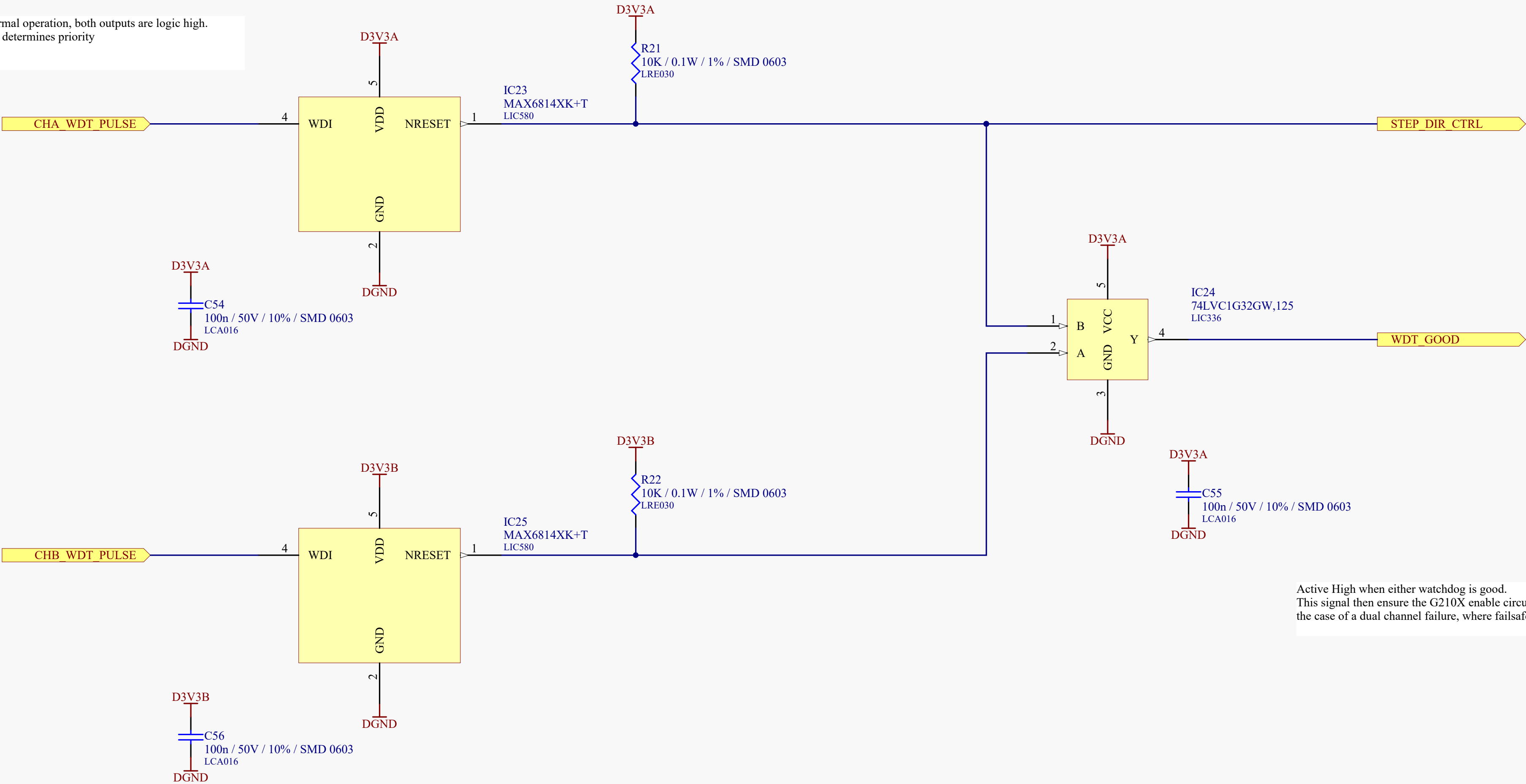
  <a href="http://rloop.org">http://rloop.org</a>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control		
	Throttle Multiplexers		
Size	Drawing File Name		Revision
A3	LPCB220 - THROTTLE MUX TOP.SchDoc		1
Scale		Sheet Details	
N.T.S		Sheet: 15 Of: 18	






  <a href="http://rloop.org">http://rloop.org</a>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control		
	Isolated Throttle Channel		
Size	Drawing File Name		Revision
A3	LPCB220 - THROTTLE ISO CHANNEL.SchDoc		1
Scale		Sheet Details	
N.T.S		Sheet: 17 Of: 18	

During normal operation, both outputs are logic high.  
Channel A determines priority



Active High when either watchdog is good.  
This signal then ensure the G210X enable circuits are kept closed except in  
the case of a dual channel failure, where failsafe braking is required.

DESIGN REVIEW NOTES:  
1. STEP\_DIR\_CTRL should go low if channel A fails, giving channel B priority  
2. STEP\_DIR\_CTRL is pulled up, so the only way it can go low is if the TPS3813 is powered  
3. All devices here need redundant supplies  
4. Need to provide isolation in case of parasitic power from a failed node.

  <div><a href="http://rloop.org">http://rloop.org</a></div>	PCB COMPONENT DESCRIPTION		LDL NUMBER
	Redundant Stepper Node		LPCB220
	Assembly Details		
	Brake Control		
	Watchdog		
Size	Drawing File Name		Revision
A3	LPCB220 - WATCHDOG.SchDoc		1
Scale		Sheet Details	
N.T.S		Sheet: 18 Of: 18	