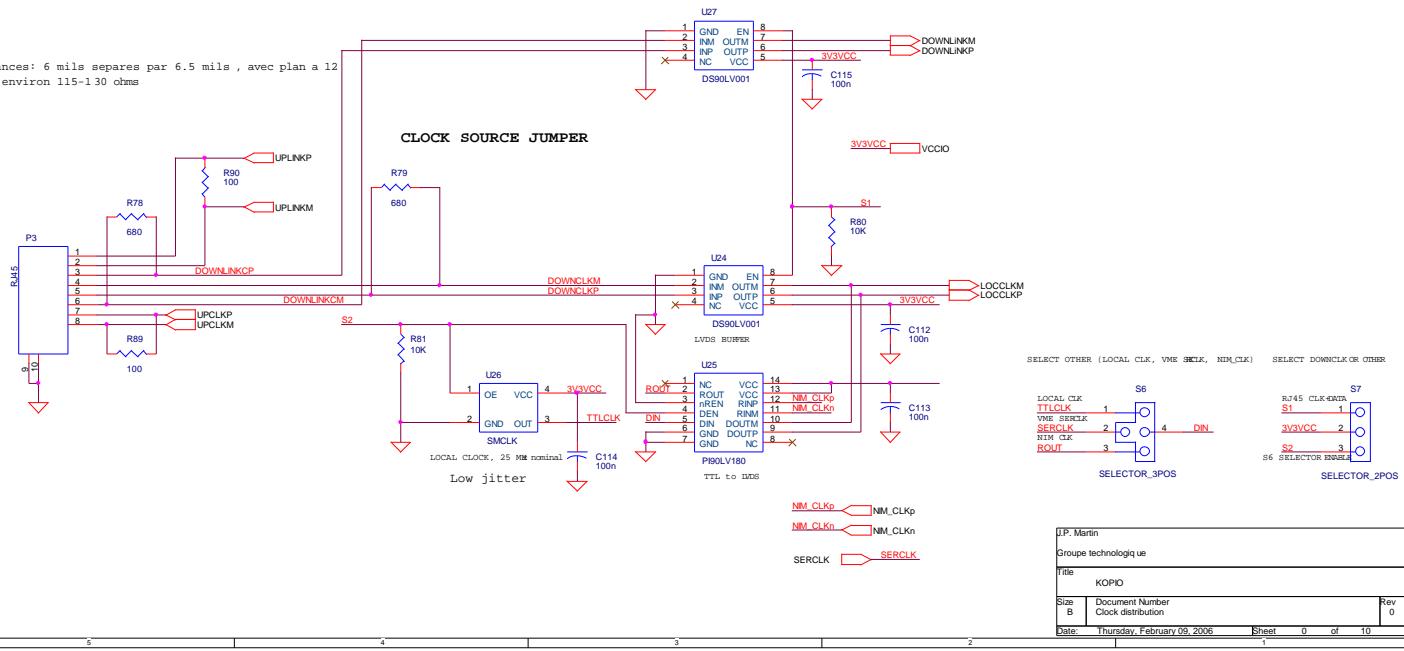
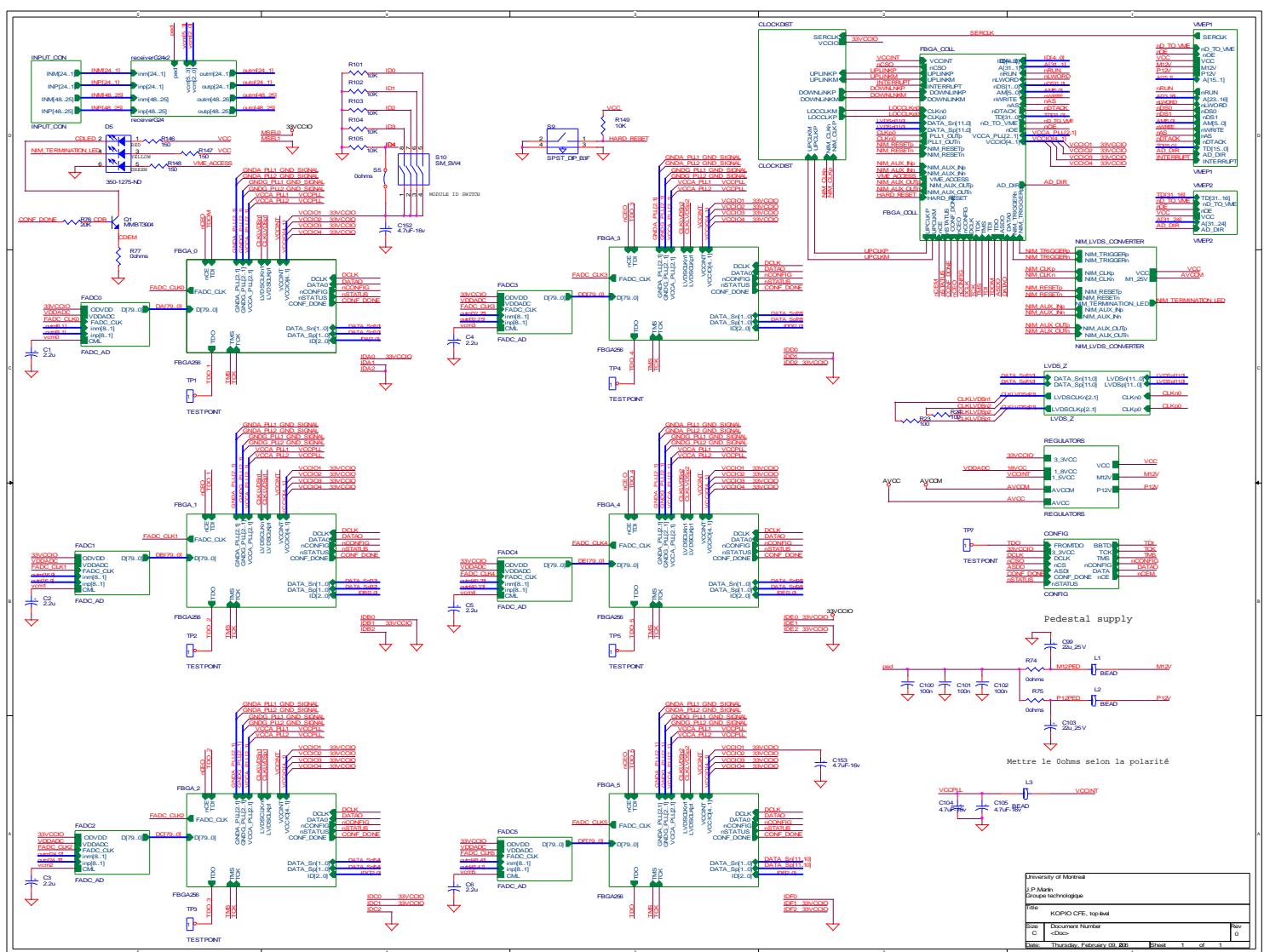
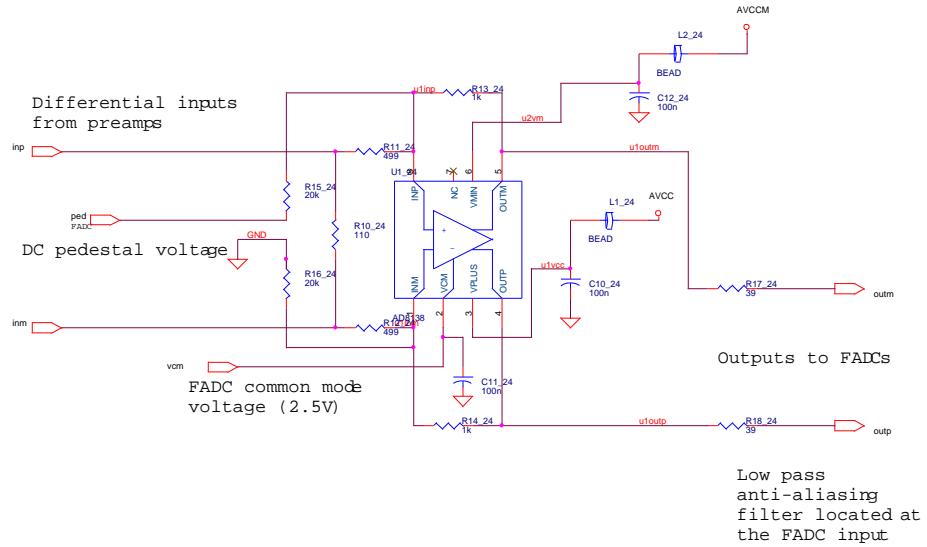


FRONT PANEL CONNECTORS, AND SYSTEM CLOCK

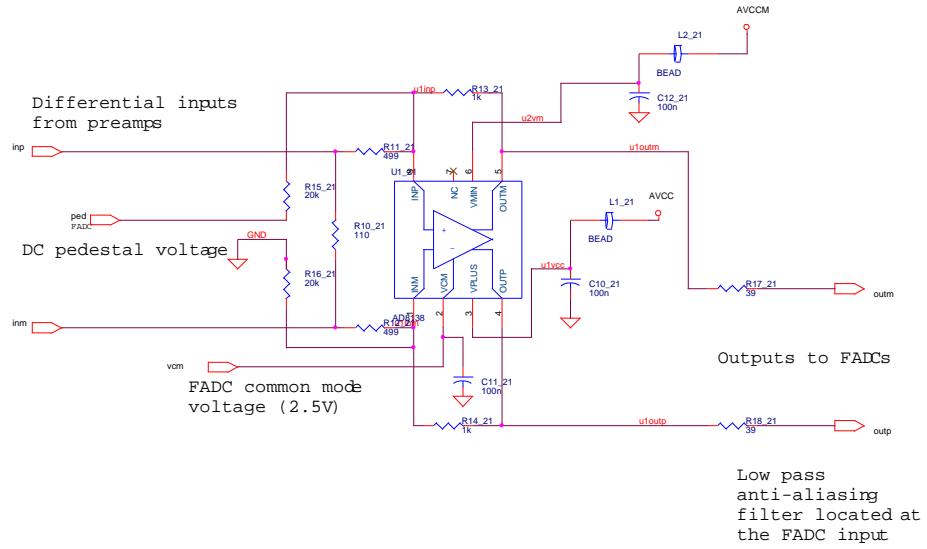
Impedances: 6 mils separates par 6.5 mils , avec plan a 12 mils: environ 115-130 ohms



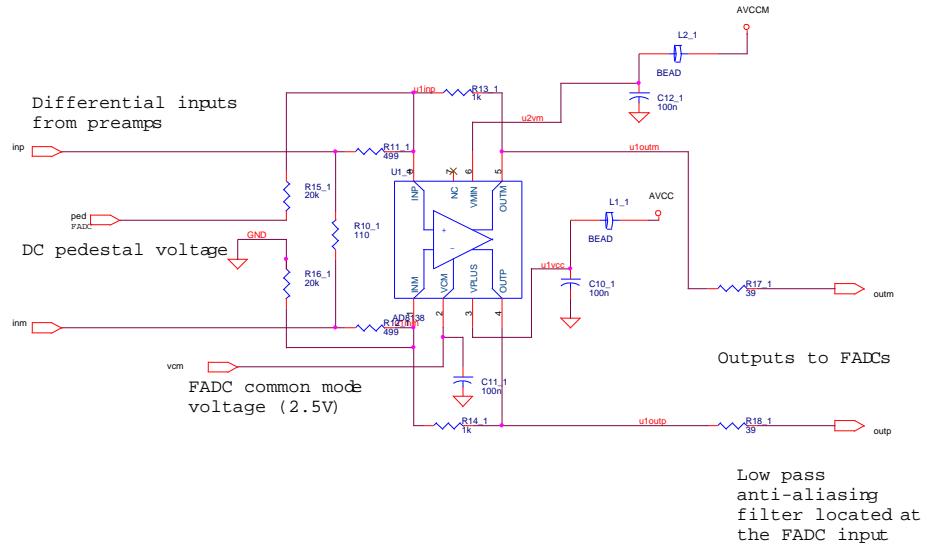




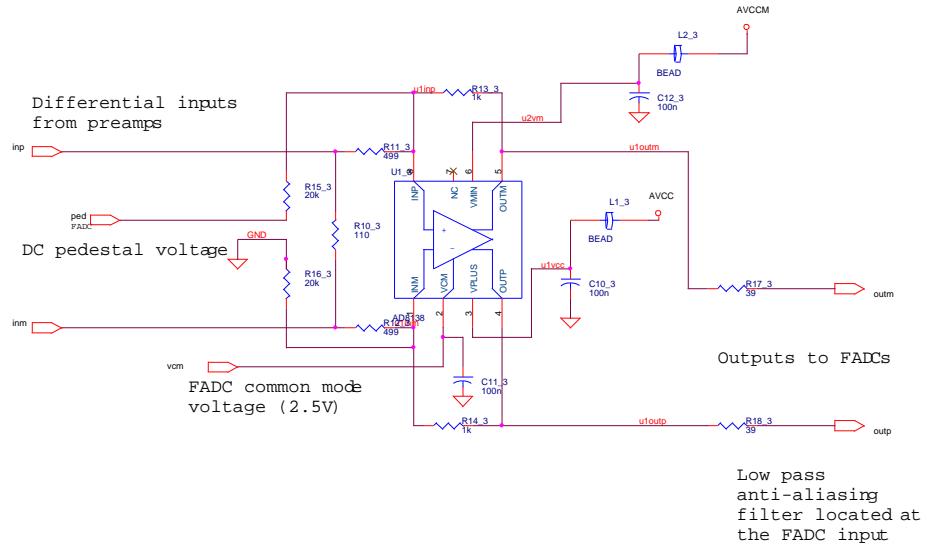
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



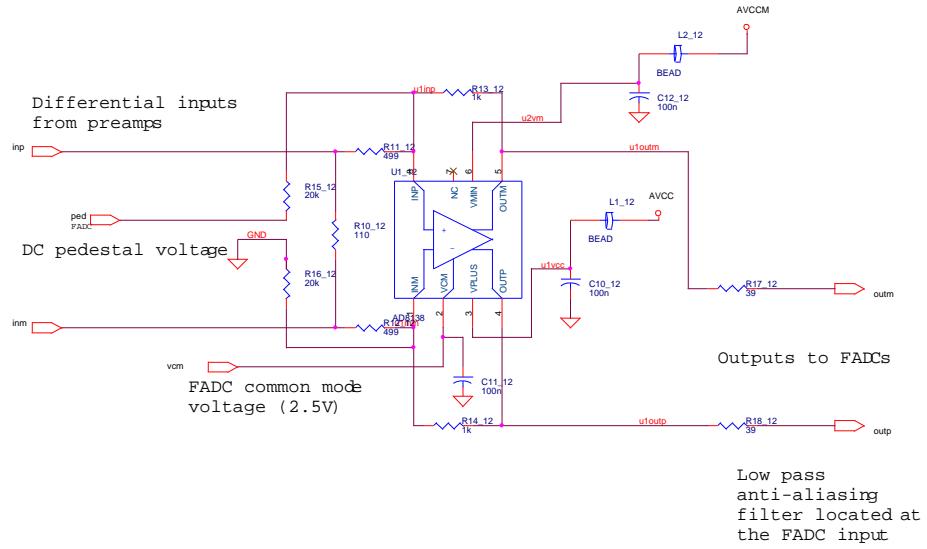
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



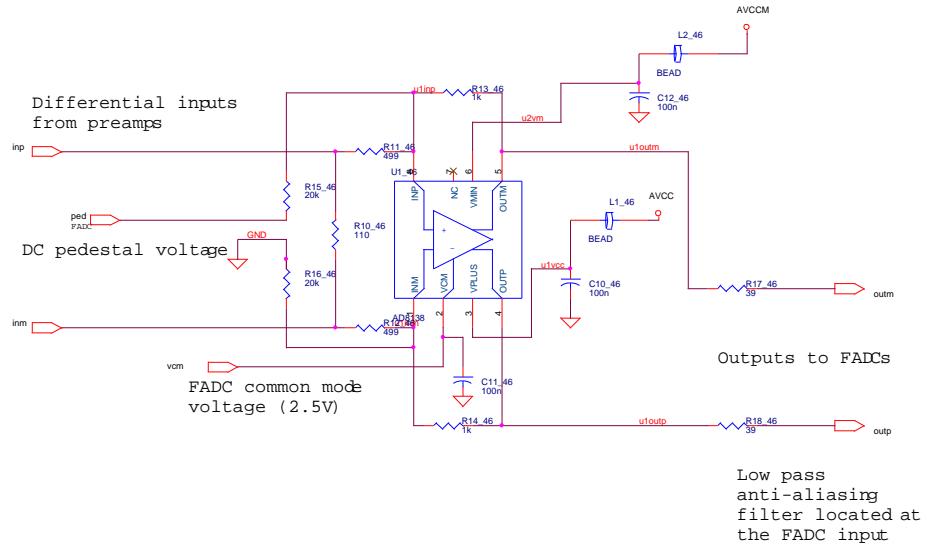
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



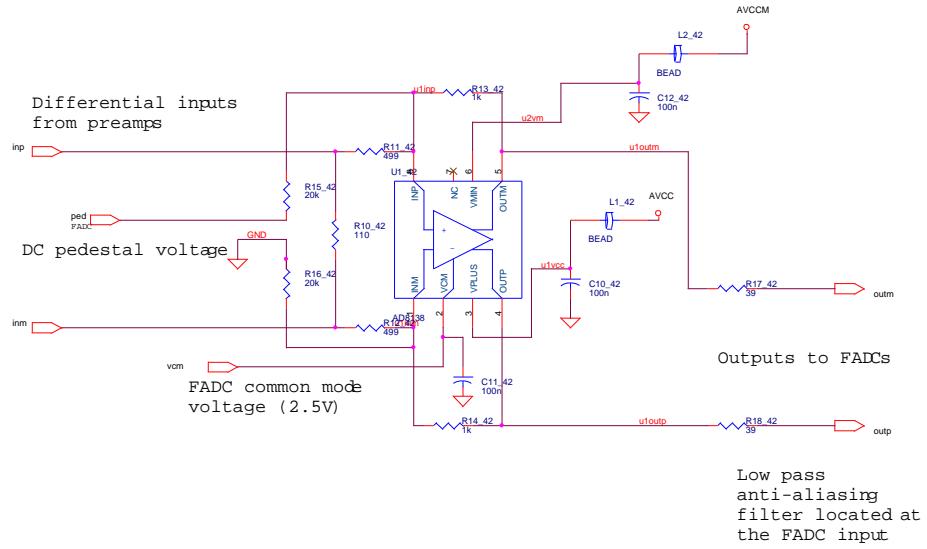
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



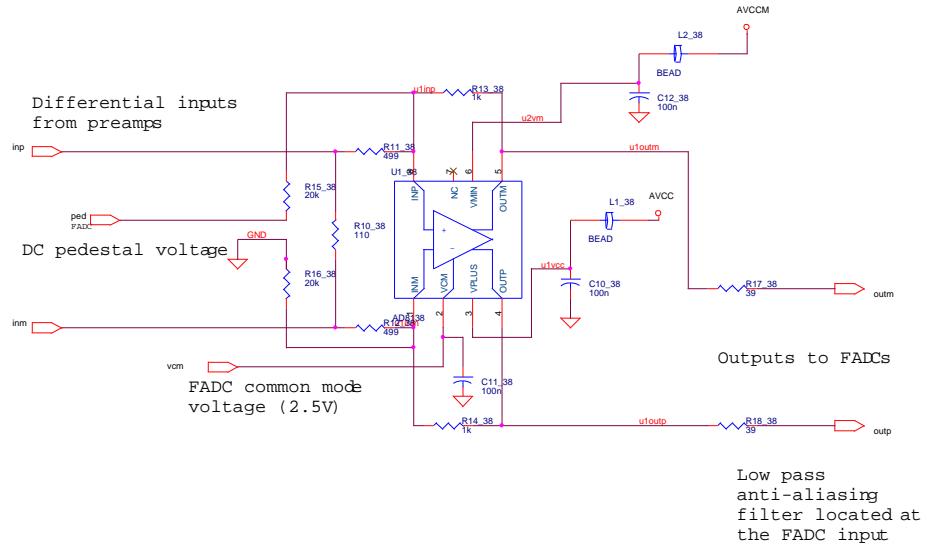
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



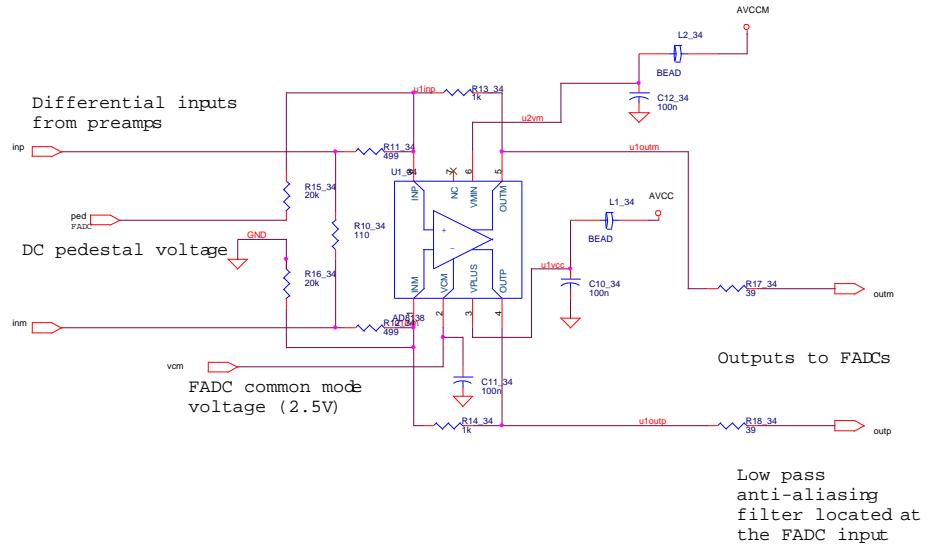
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



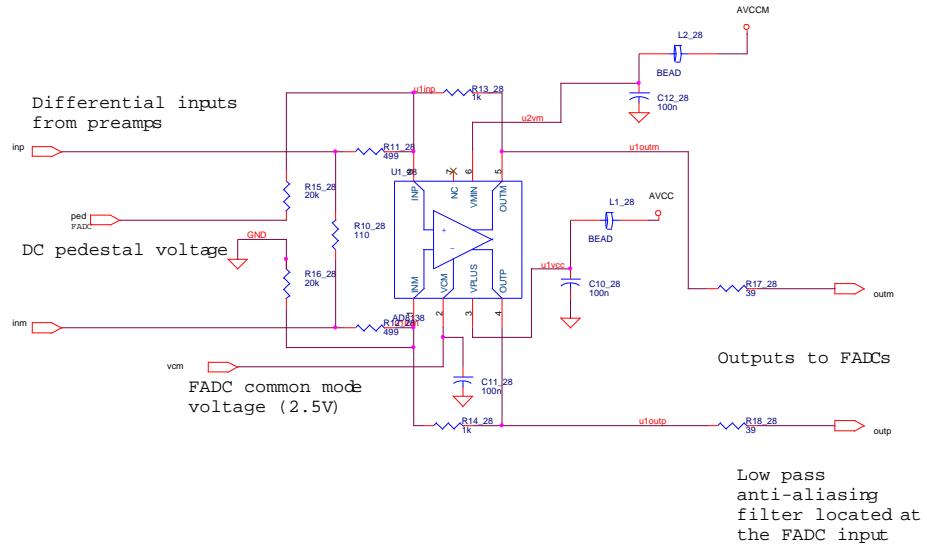
University of Montreal			
J.P.Martin			
Groupe technologique			
Title			
KOPIO400 Analog Receivers			
Size	Document Number	Rev	
B	RCV	0	
Date:	Wednesday, February 08, 2006	Sheet	1 of 1



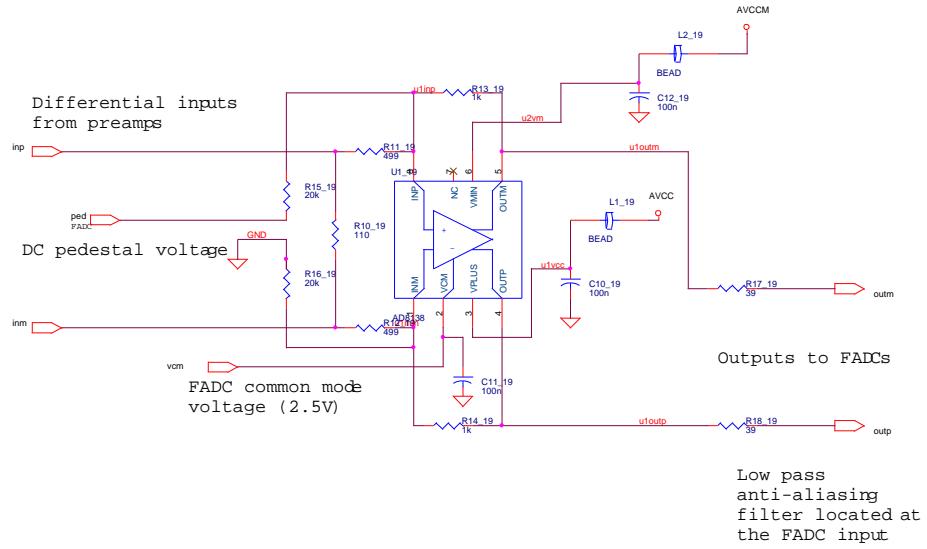
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



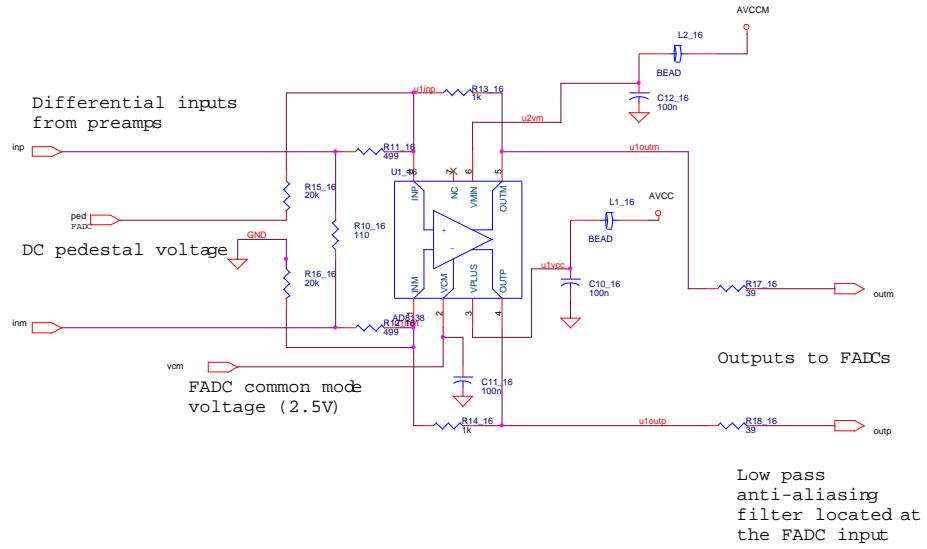
University of Montreal			
J.P.Martin			
Groupe technologique			
Title			
KOPIO400 Analog Receivers			
Size	Document Number	Rev	
B	RCV	0	
Date:	Wednesday, February 08, 2006	Sheet	1 of 1



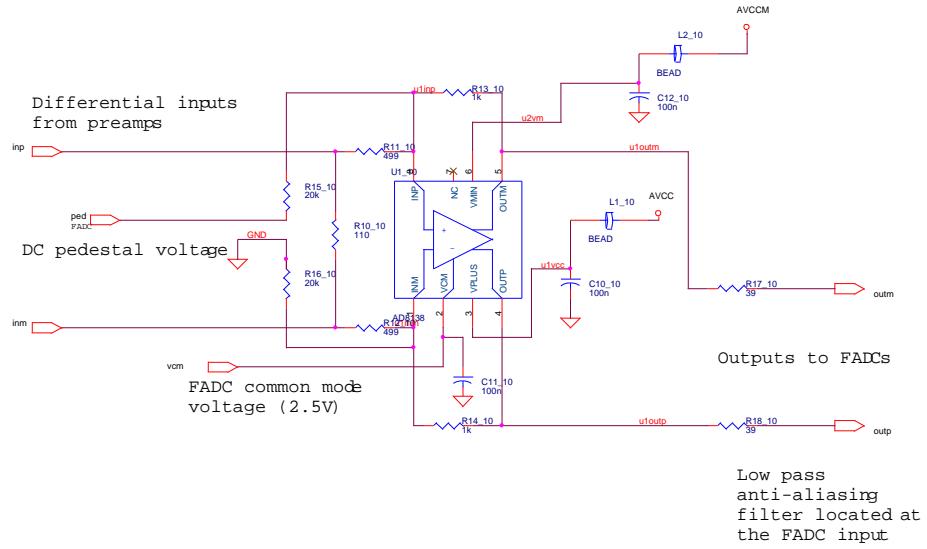
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



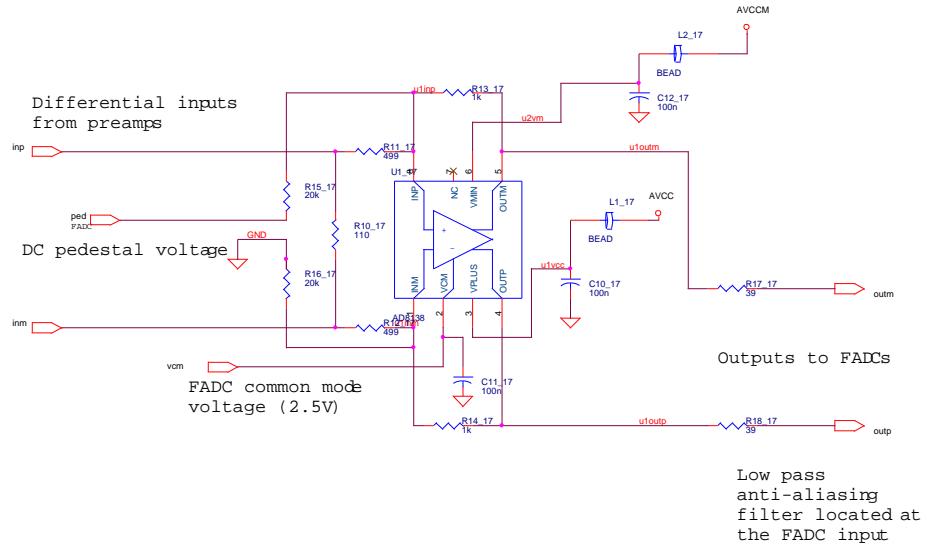
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



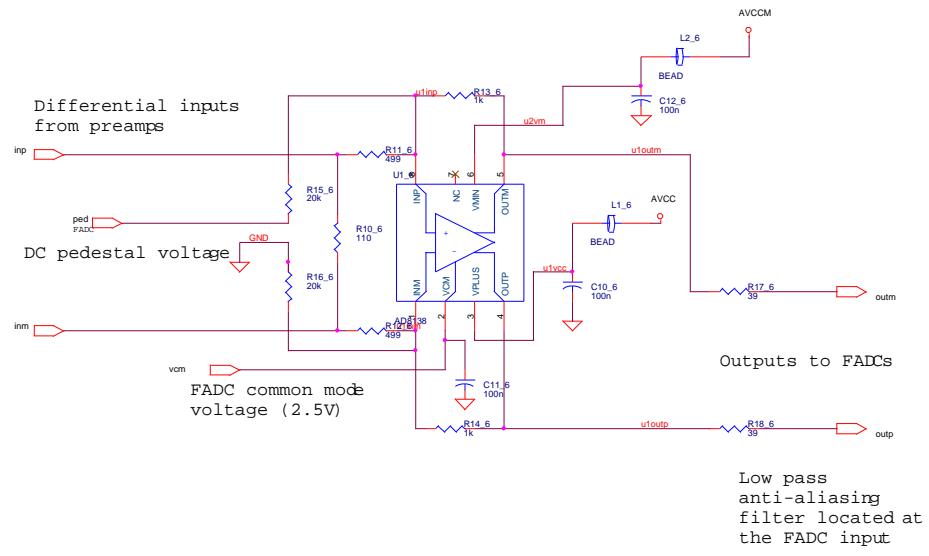
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1

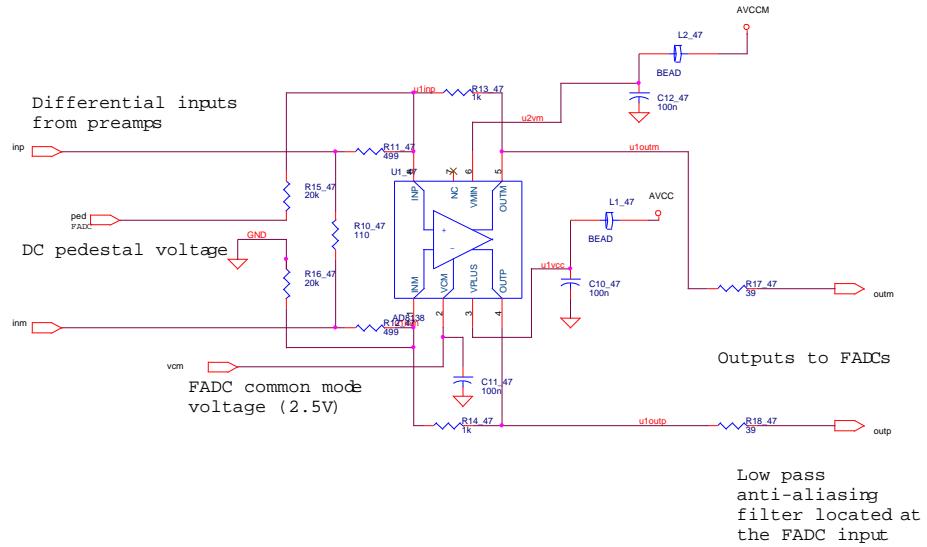


University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1

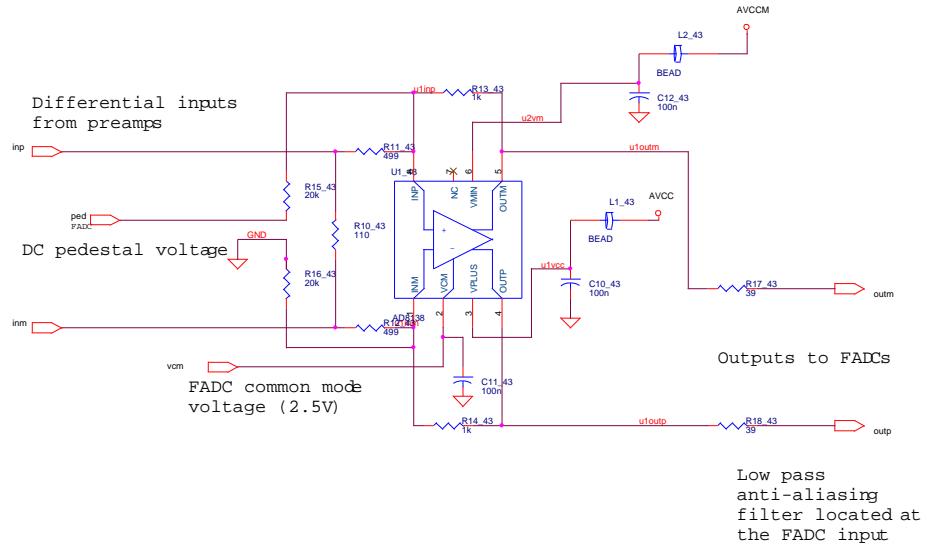


Low pass
anti-aliasing
filter located at
the FADC input

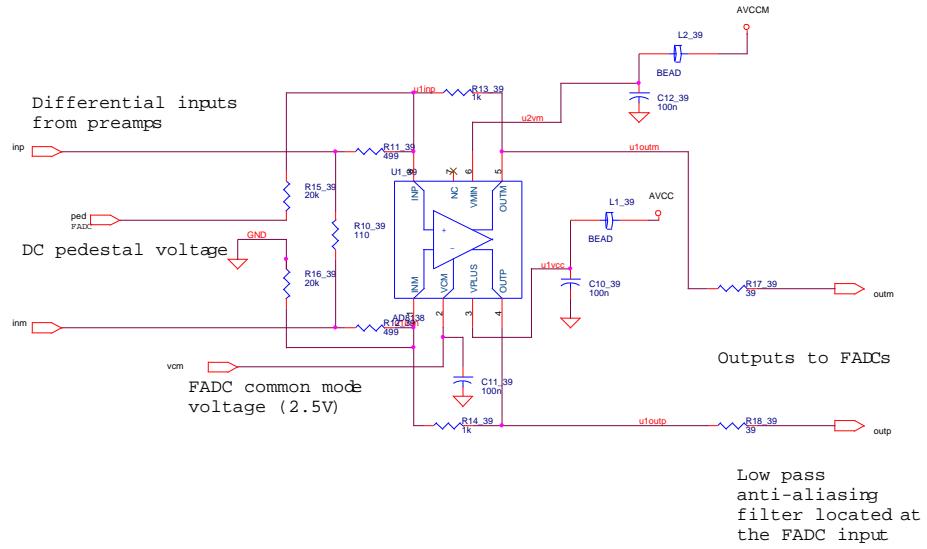
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	
B	RCV	
		Rev
		0
Date:	Wednesday, February 08, 2006	Sheet
		1 of 1



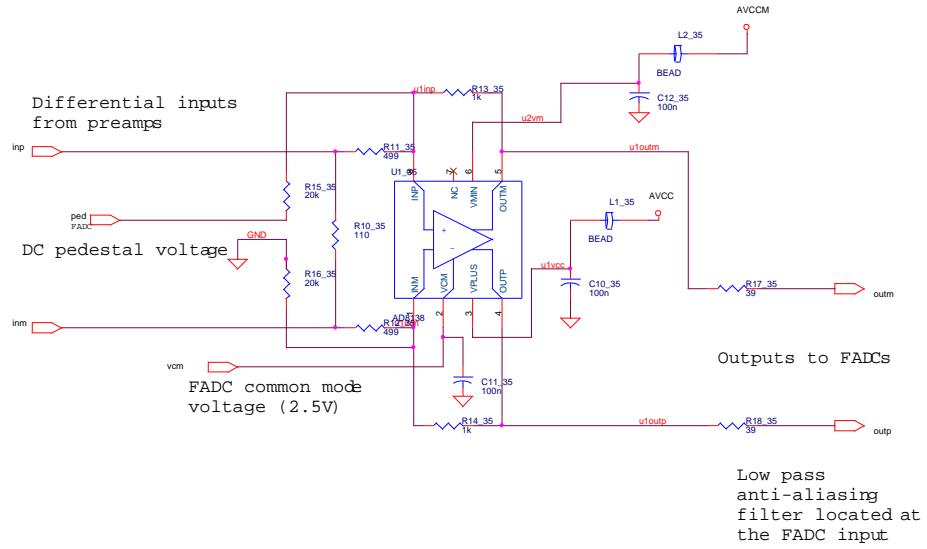
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



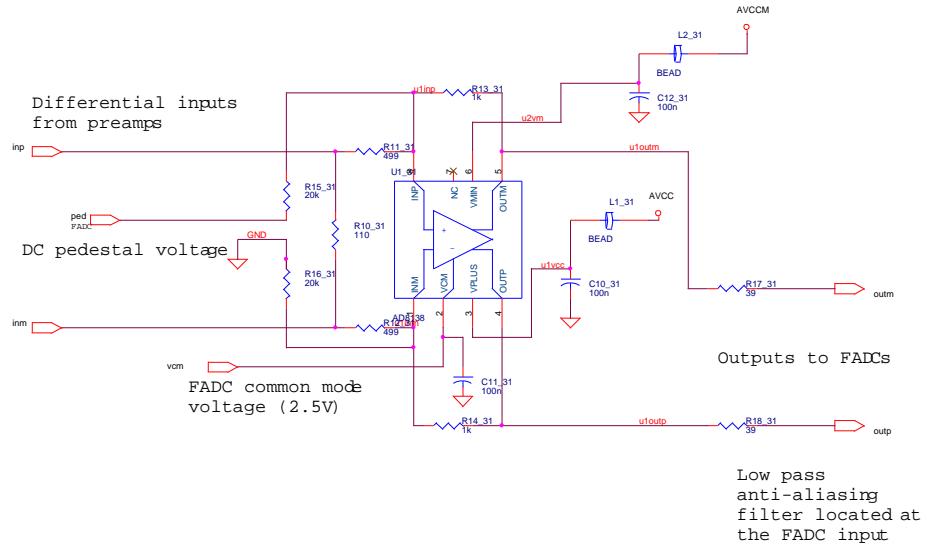
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



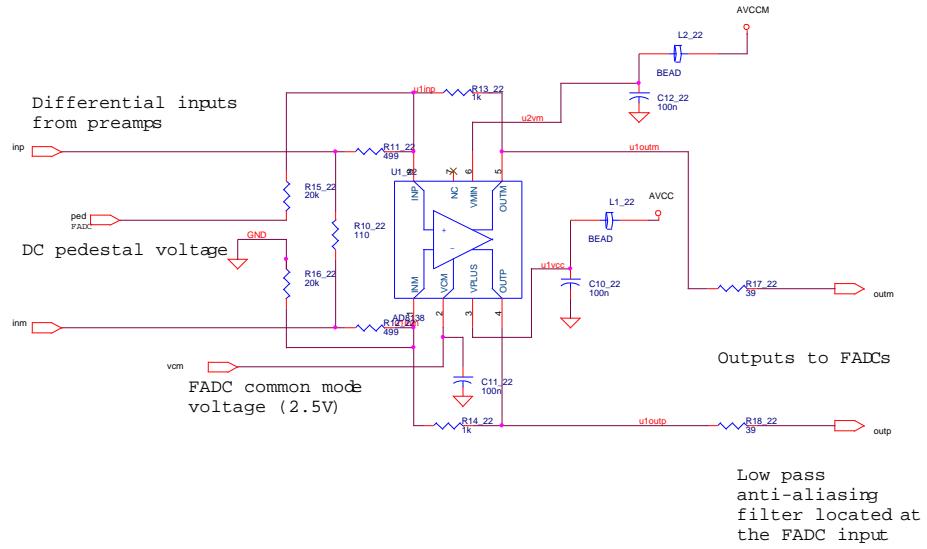
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



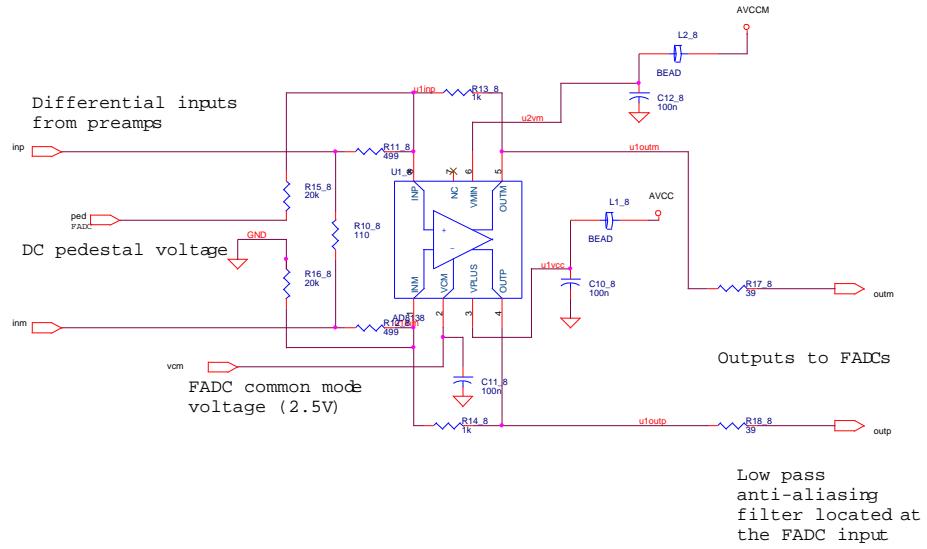
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



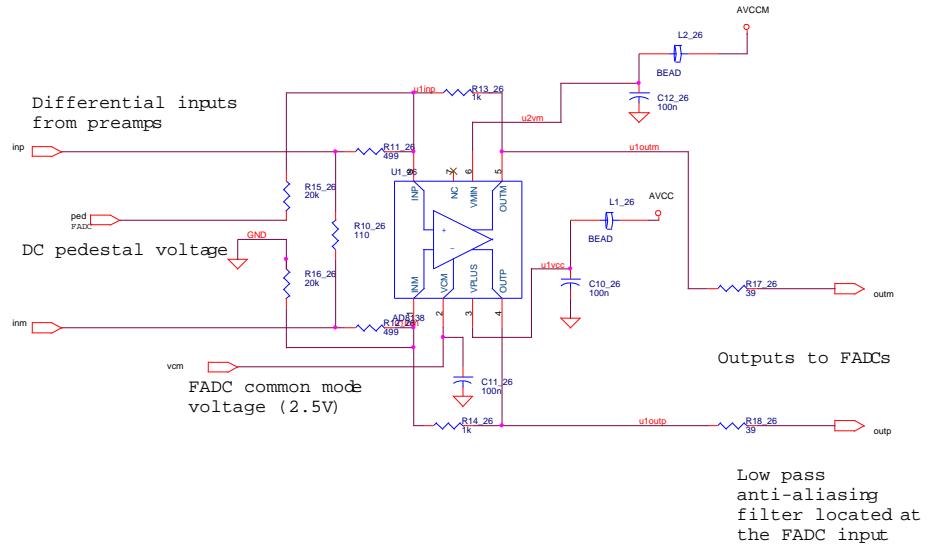
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



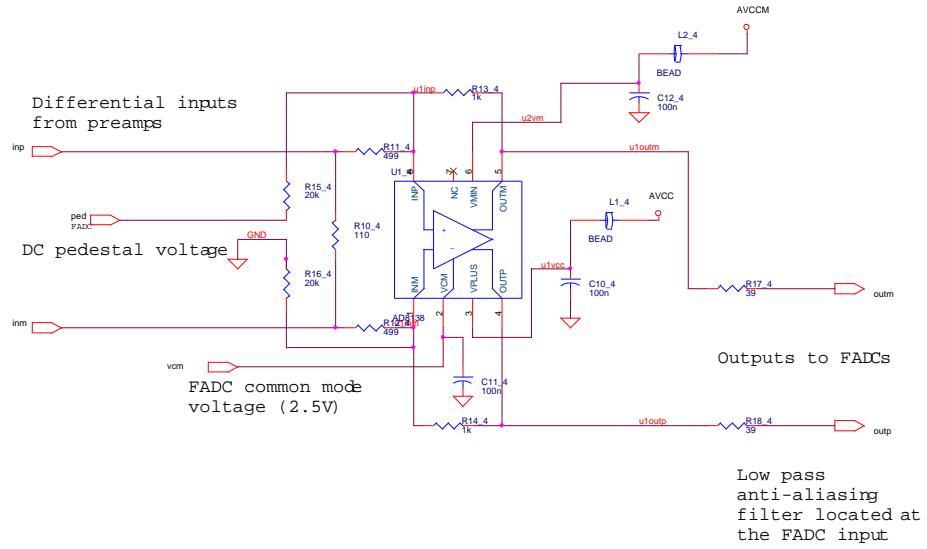
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



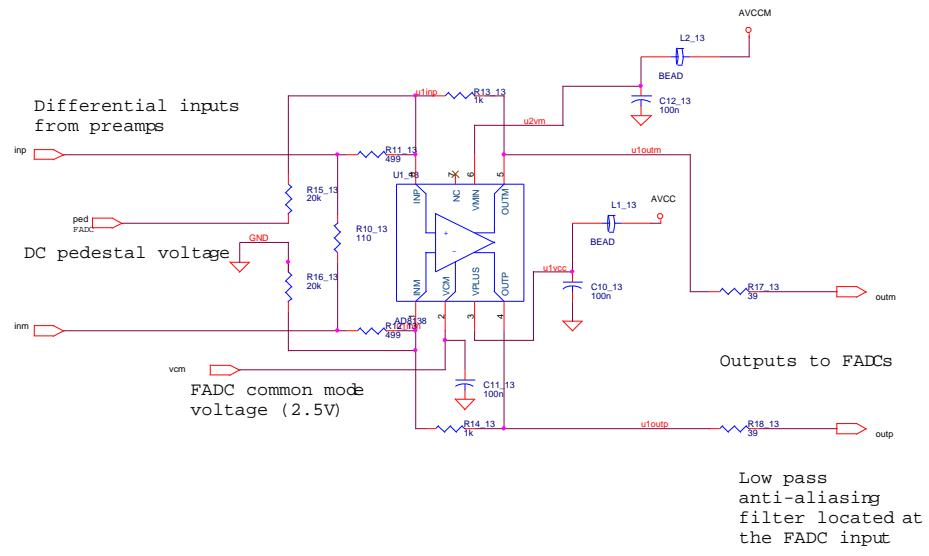
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1

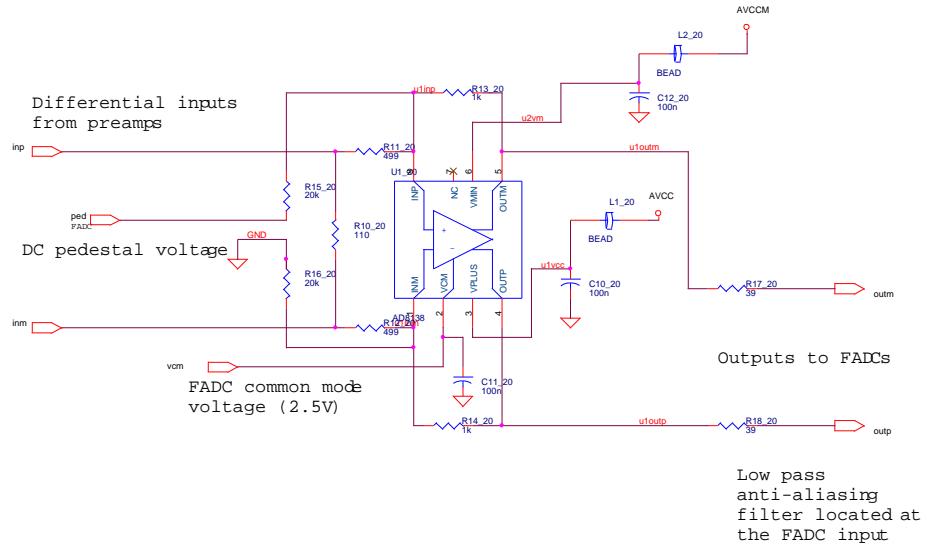


University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1

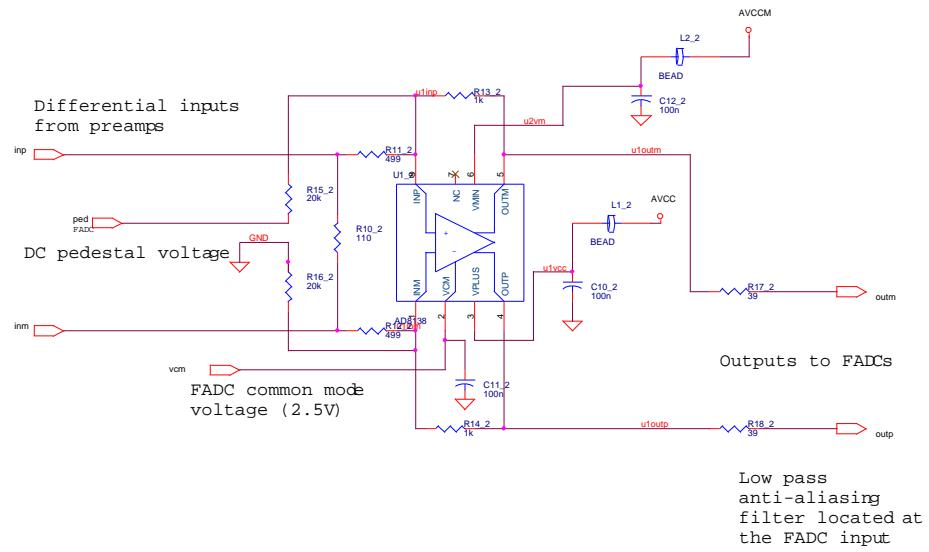


Low pass
anti-aliasing
filter located at
the FADC input

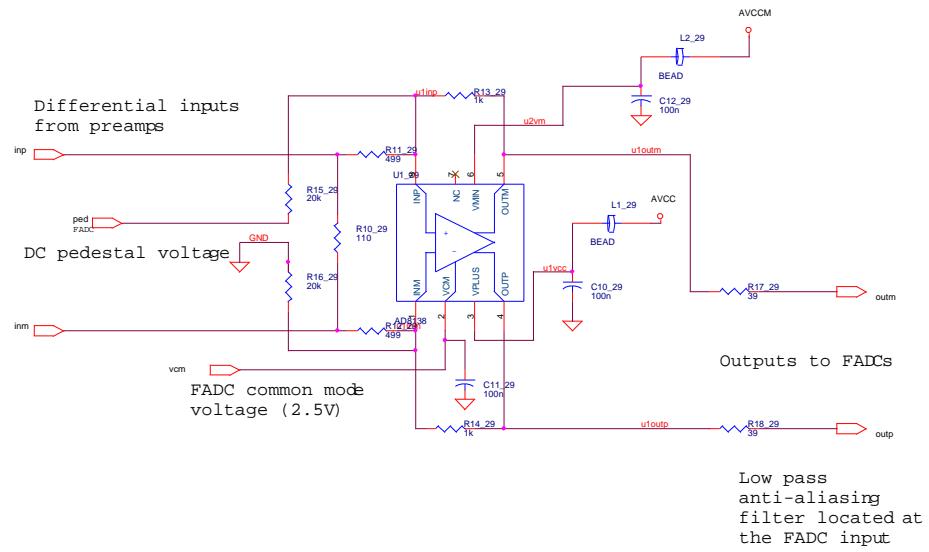
University of Montreal		
I.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



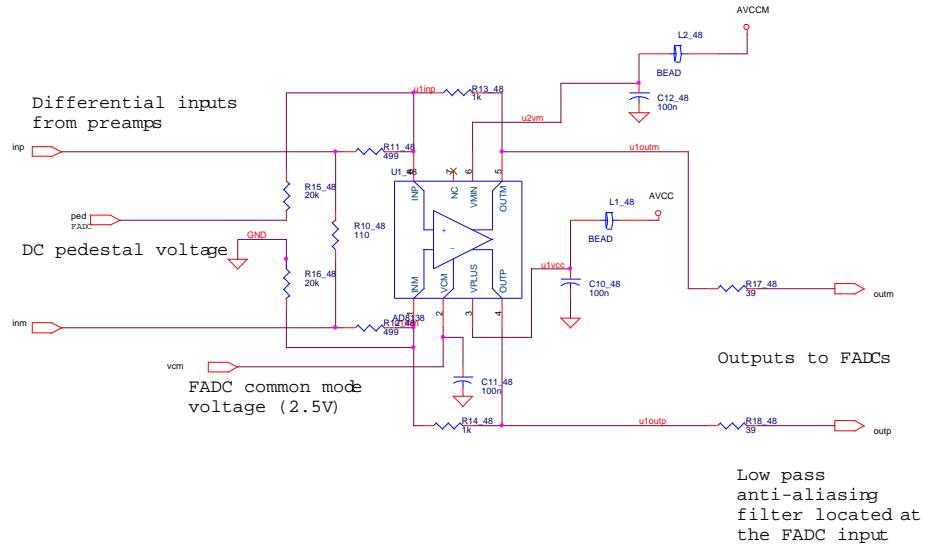
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



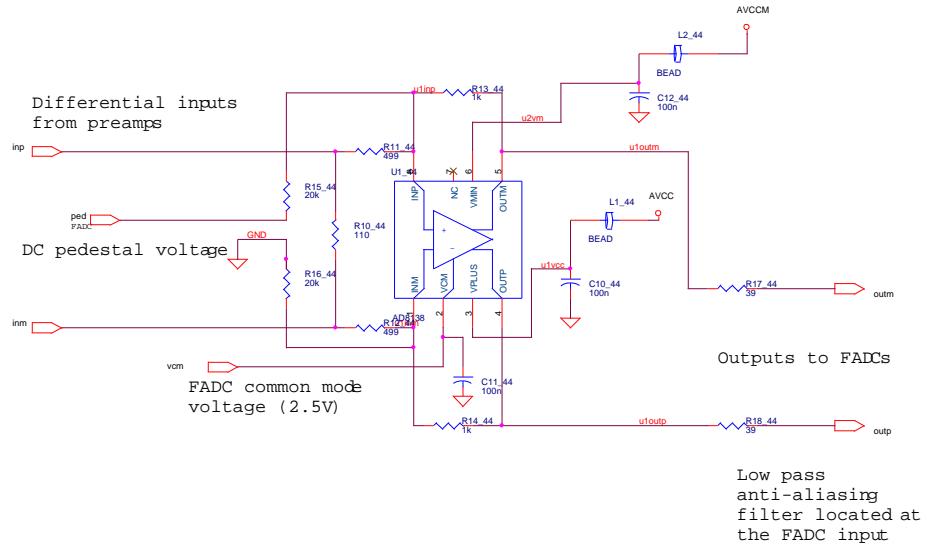
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



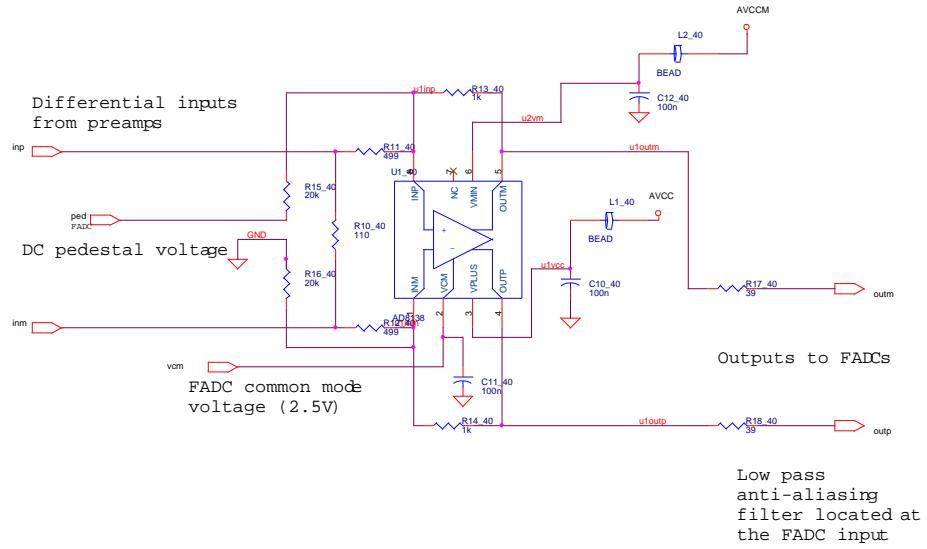
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



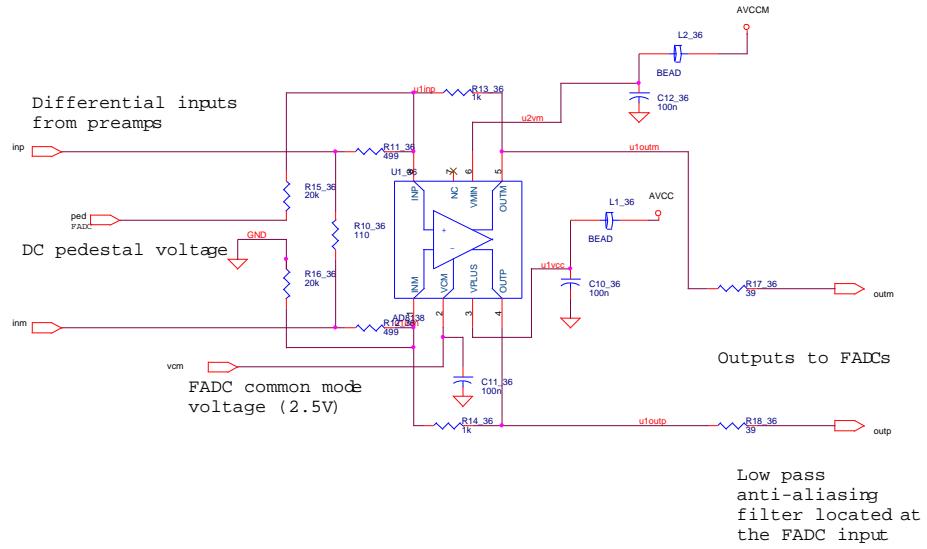
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



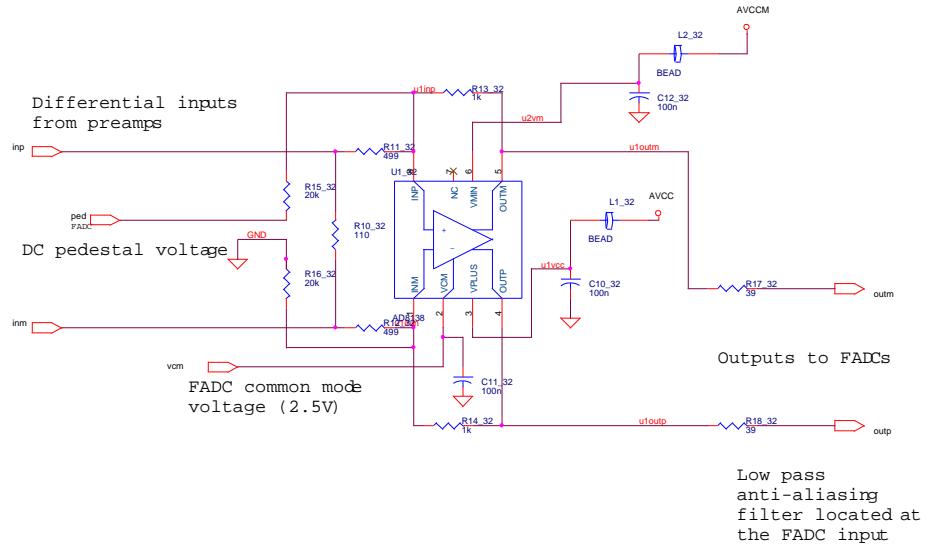
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



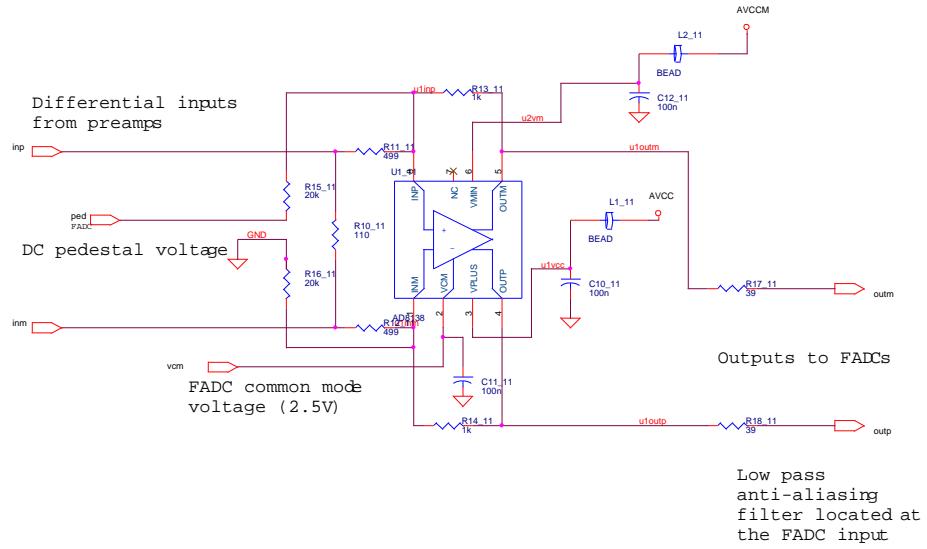
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



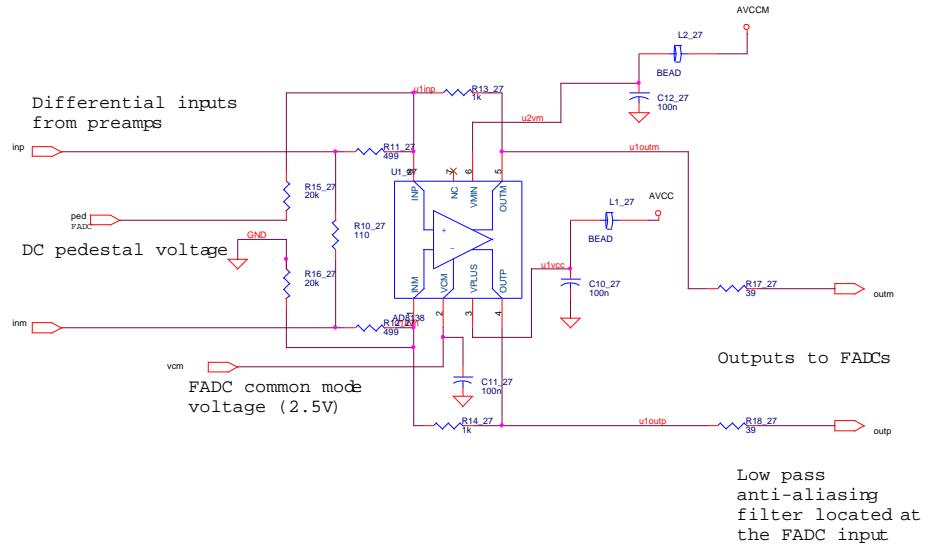
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



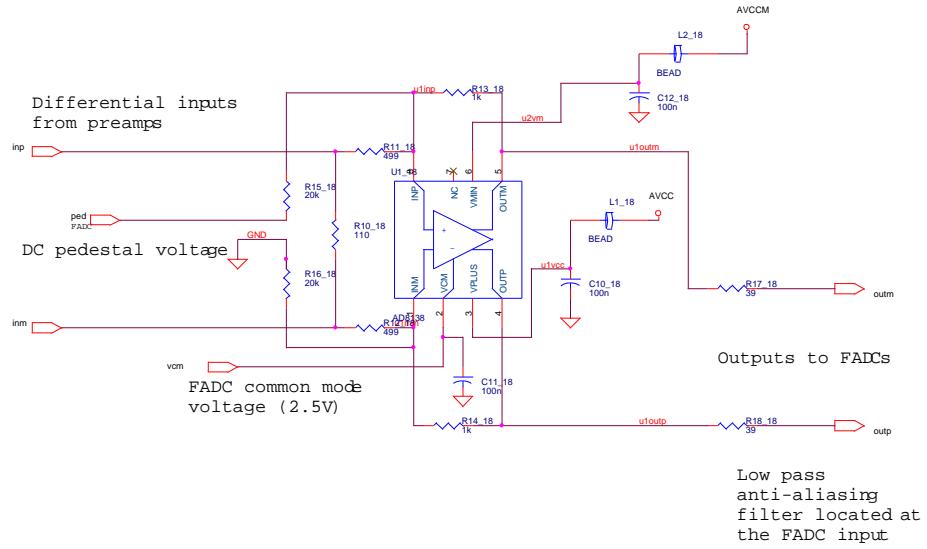
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



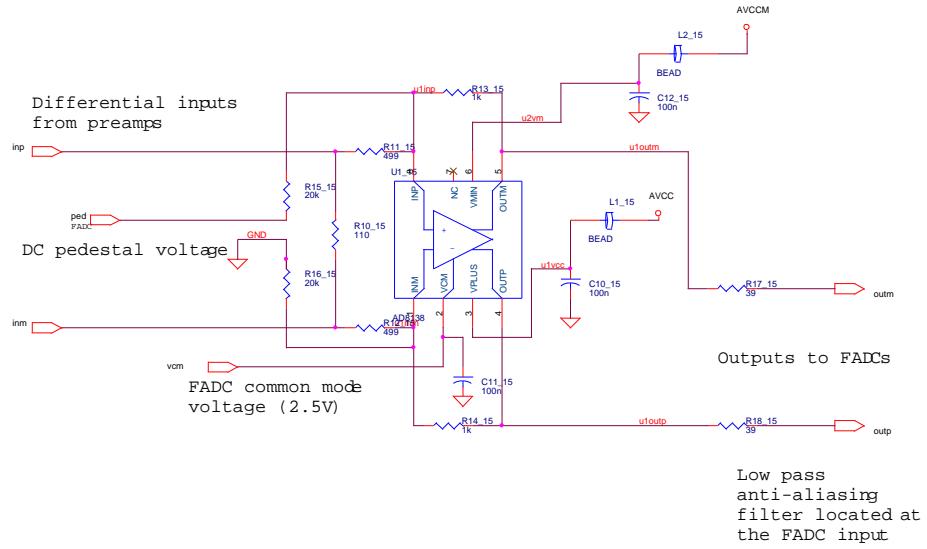
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



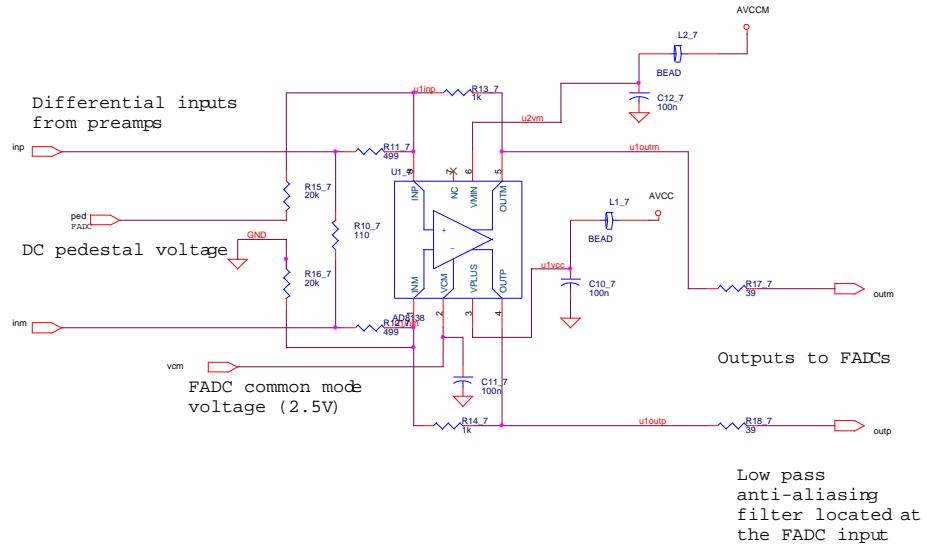
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



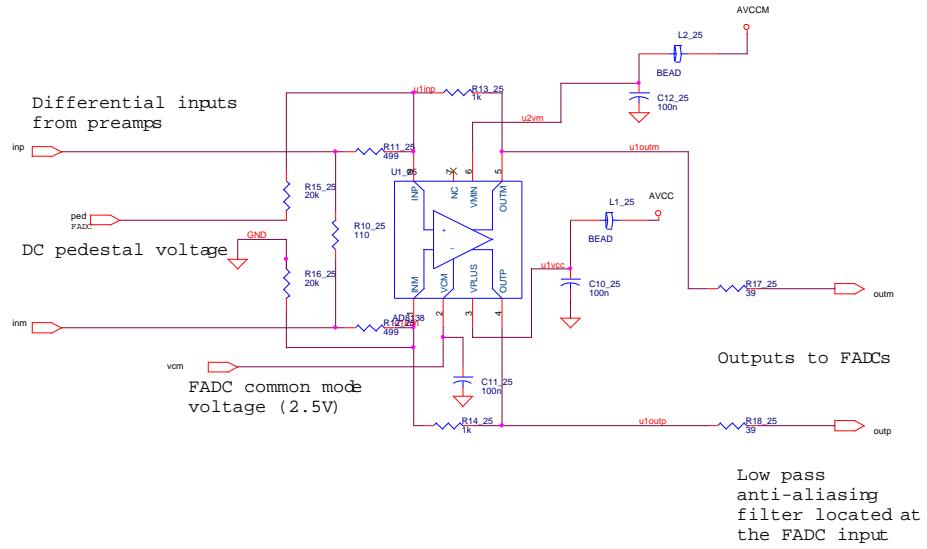
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



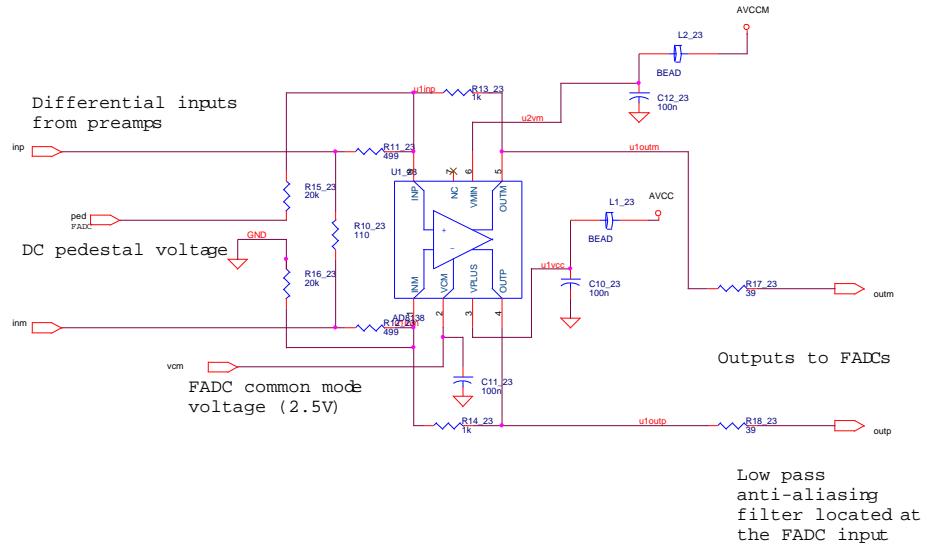
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



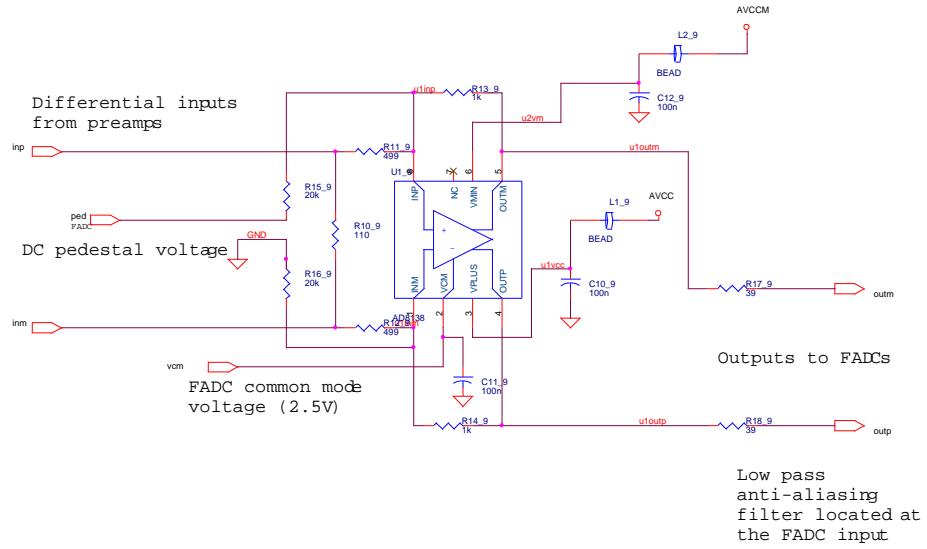
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



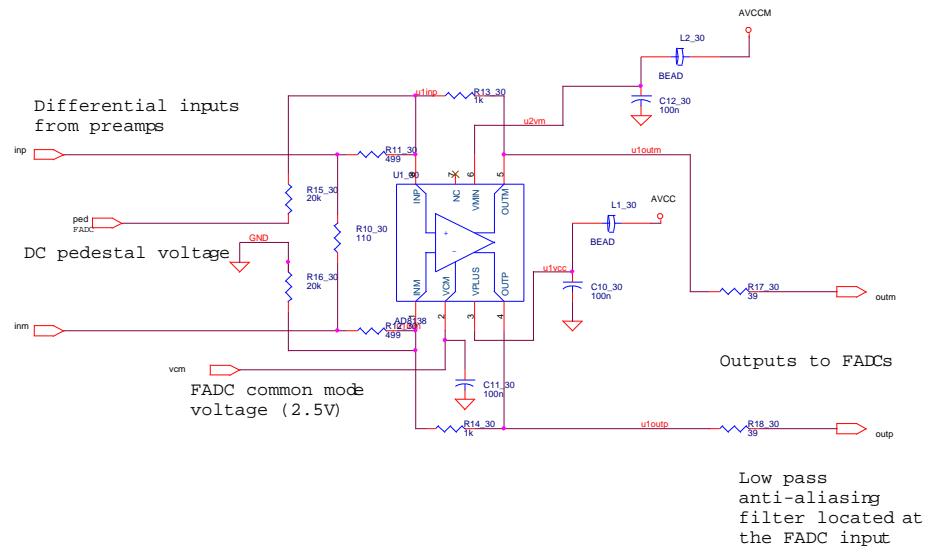
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



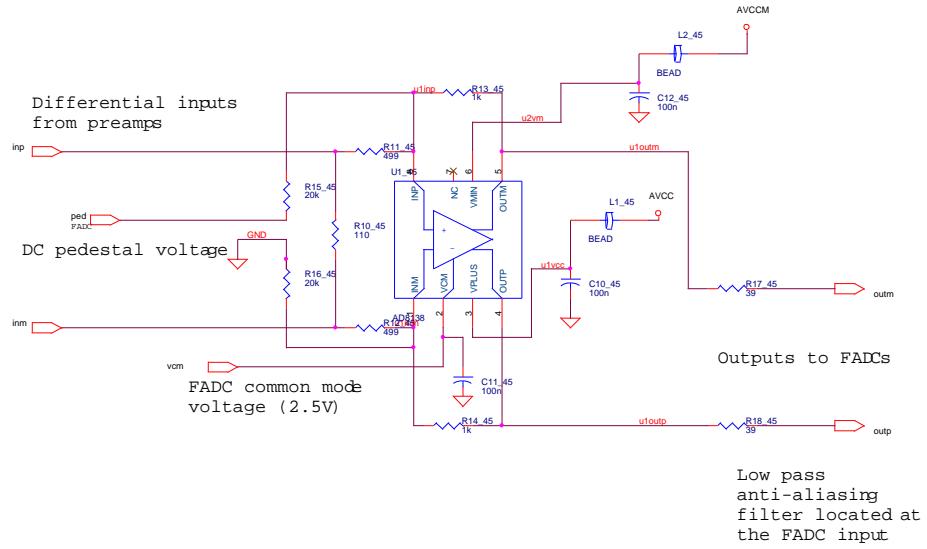
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



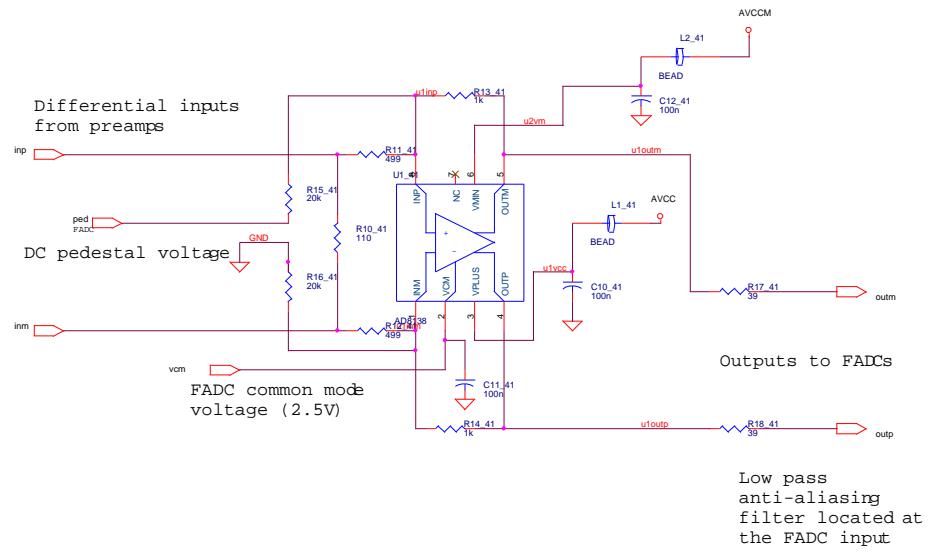
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



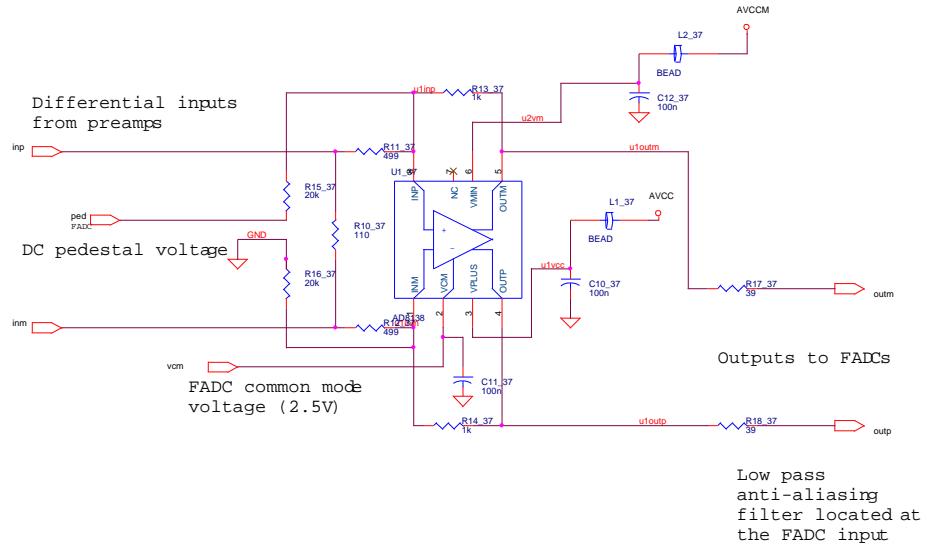
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



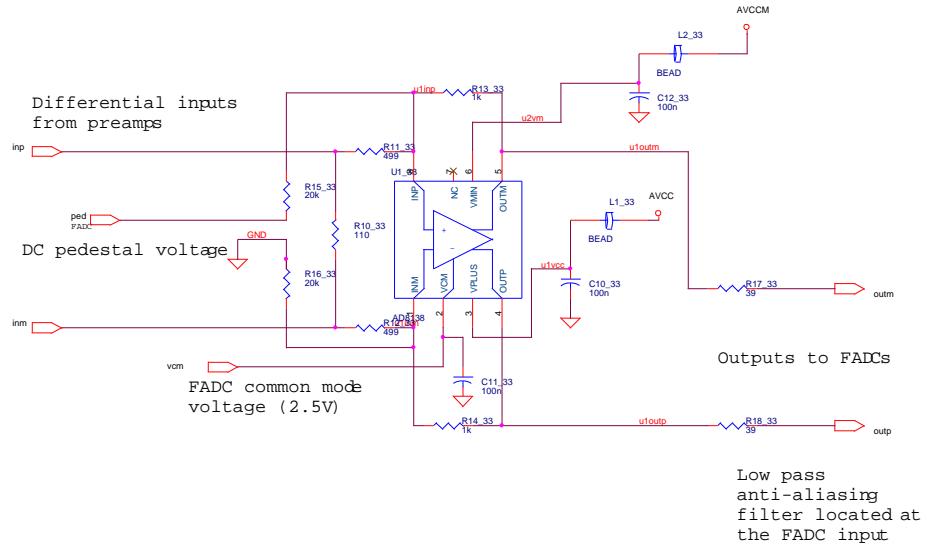
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



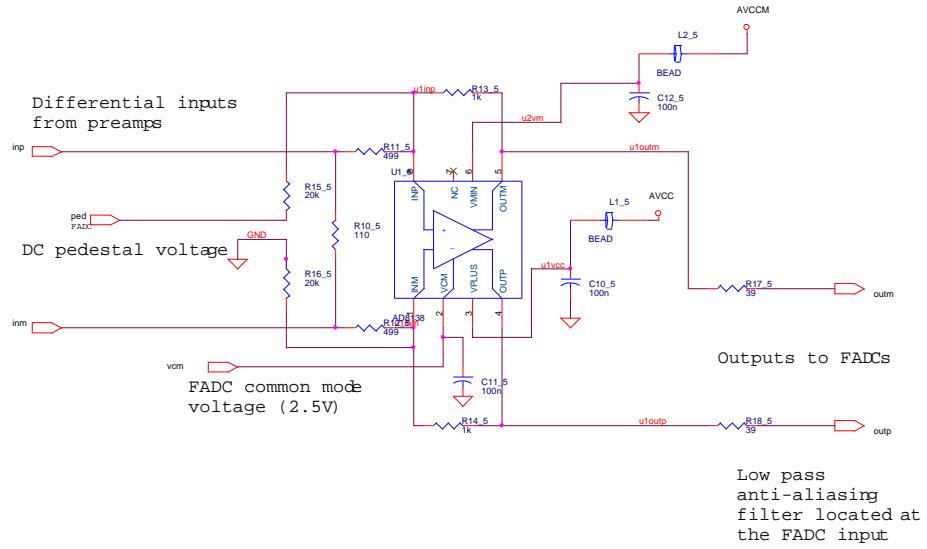
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



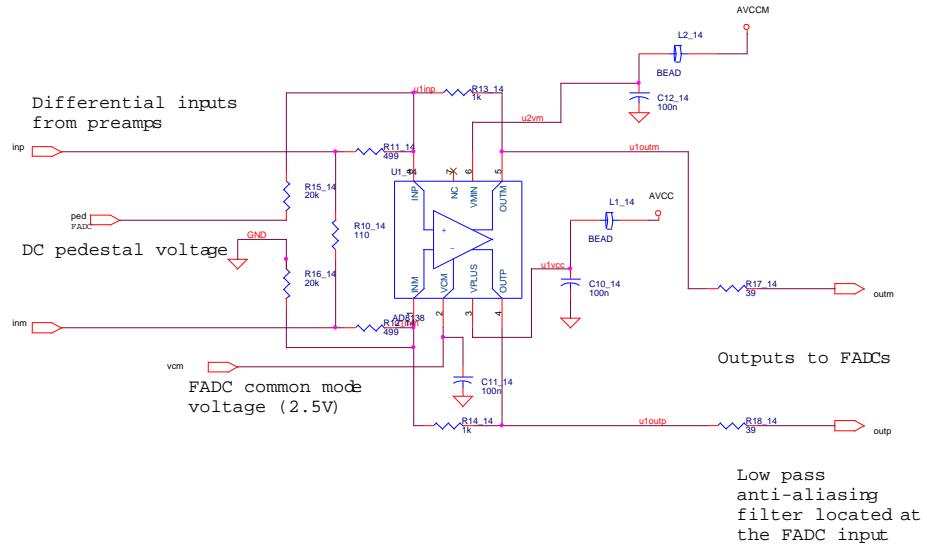
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1



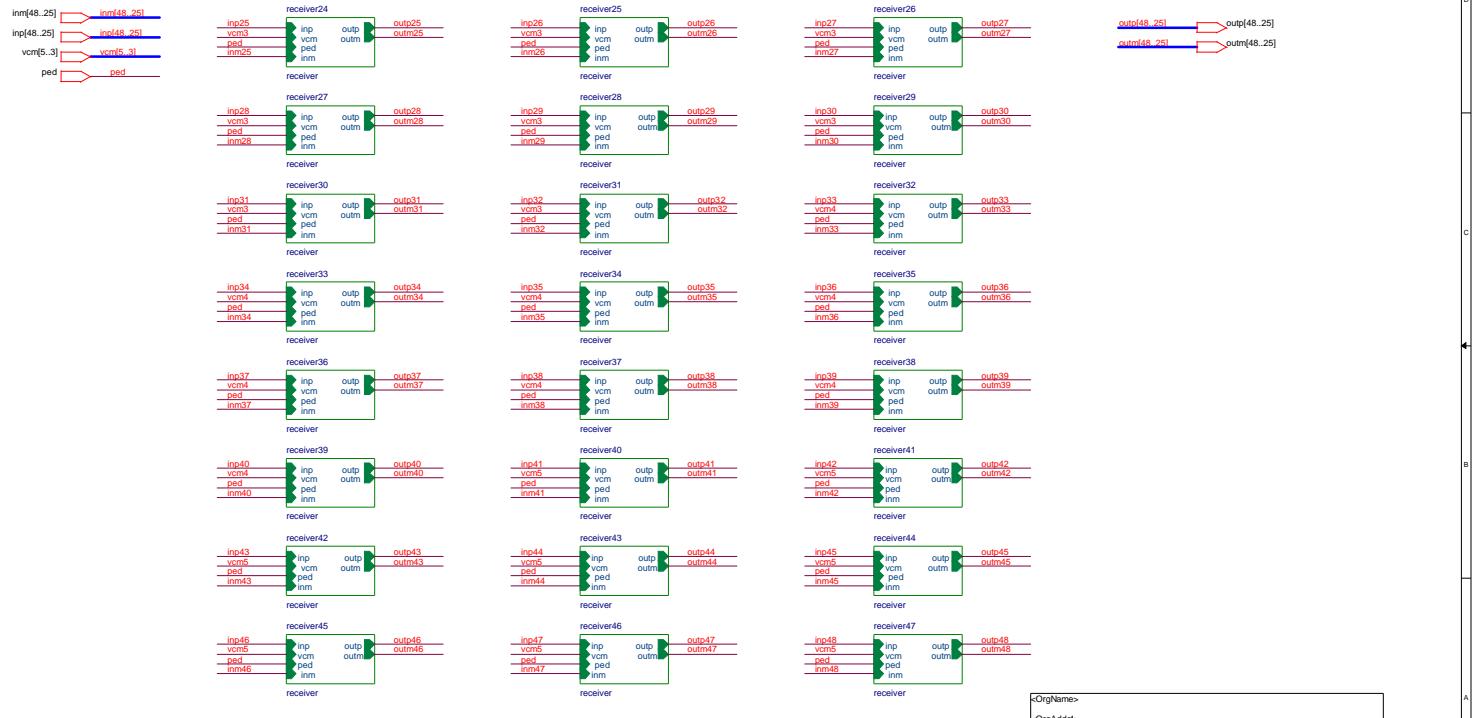
University of Montreal		
J.P.Martin		
Groupe technologique		
Title		
KOPIO400 Analog Receivers		
Size	Document Number	Rev
B	RCV	0
Date:	Wednesday, February 08, 2006	Sheet 1 of 1

3 Groups of 8 receivers, feeding half a EPGA

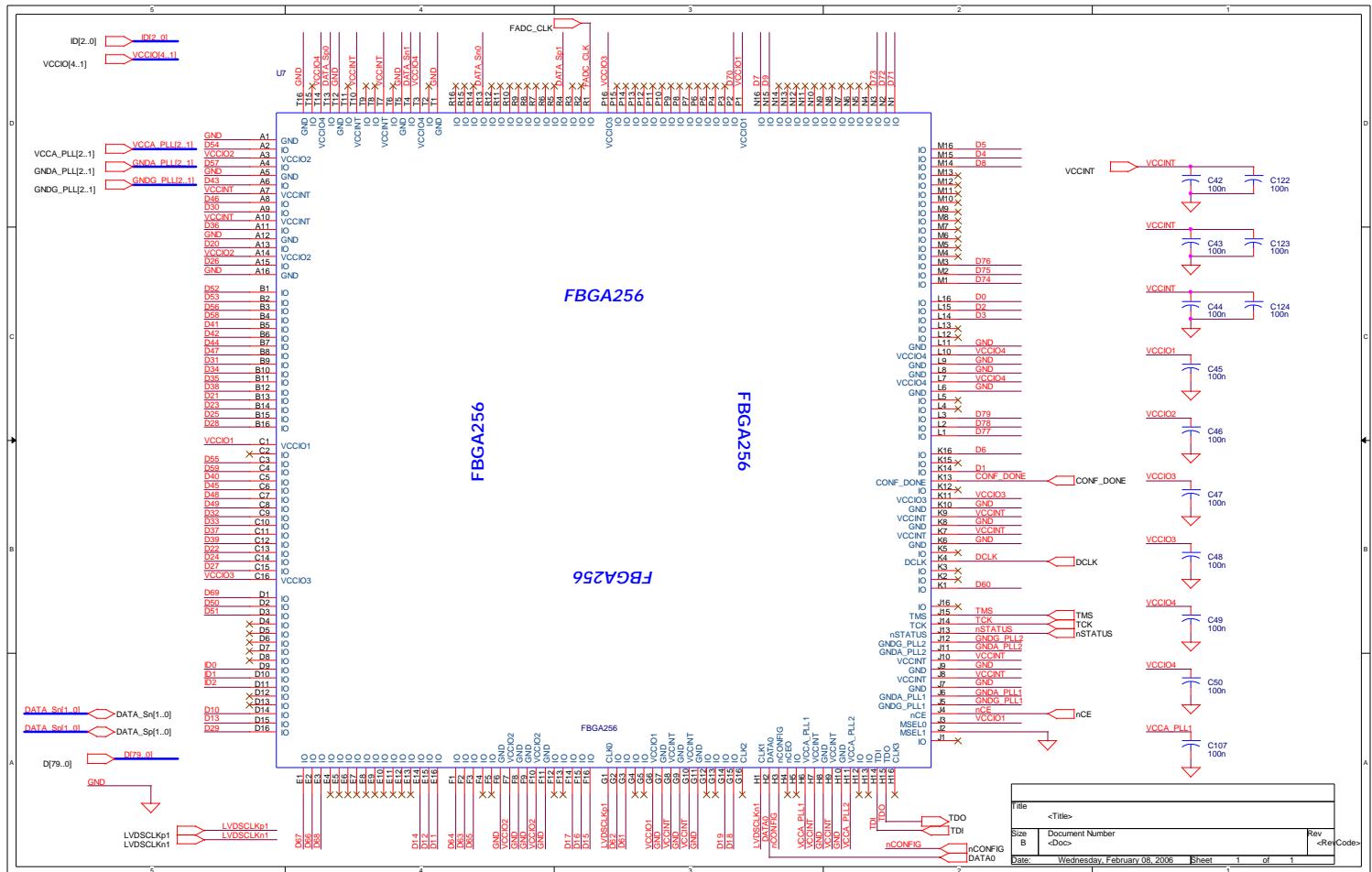


<OrgName>			
<OrgAddr1>			
<OrgAddr2>			
title	<Title>		
Size	Document Number		Rev
B	<Doc>		<RevCode>
Date: Wednesday, February 08, 2006 Sheet 1 of 1			

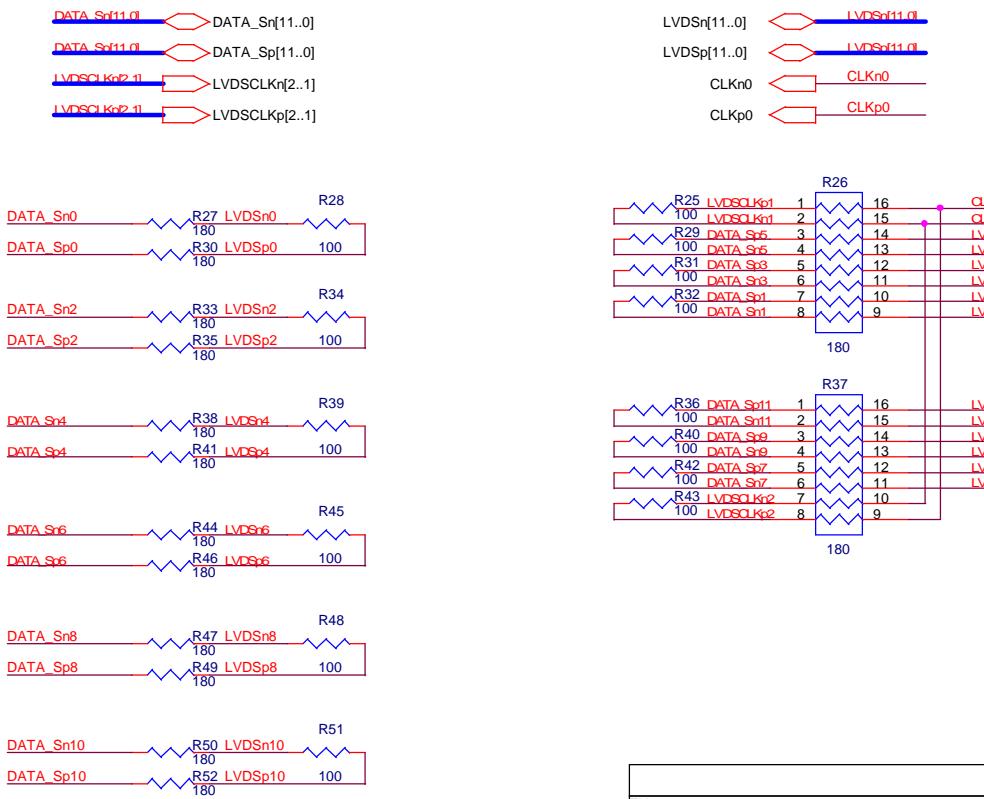
3 Groups of 8 receivers, feeding half a FPGA



<OrgName>			
<OrgAddr1>			
<OrgAddr2>			
Title	Title	<Title>	
<Title>	<Title>	<Title>	
Size	Document	Document Number	Rev
B	<Doc#>	<Doc#>	<RevCode>
Date:	V1.0	Monday, February 19, 2007	<RevCode>
		Sheet	of
		1	1

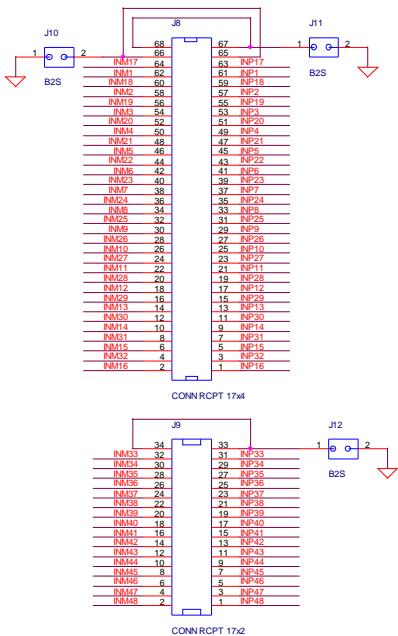


LVDS IMPEDANCE



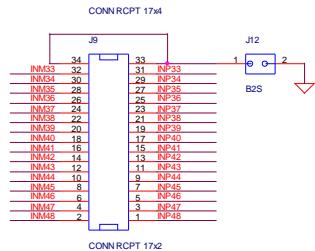
Title		<Title>	
Size	Document Number	Rev	<RevCode>
A	<Doc>	1	1 of 1

Date: Wednesday, February 08, 2006 Sheet 1 of 1



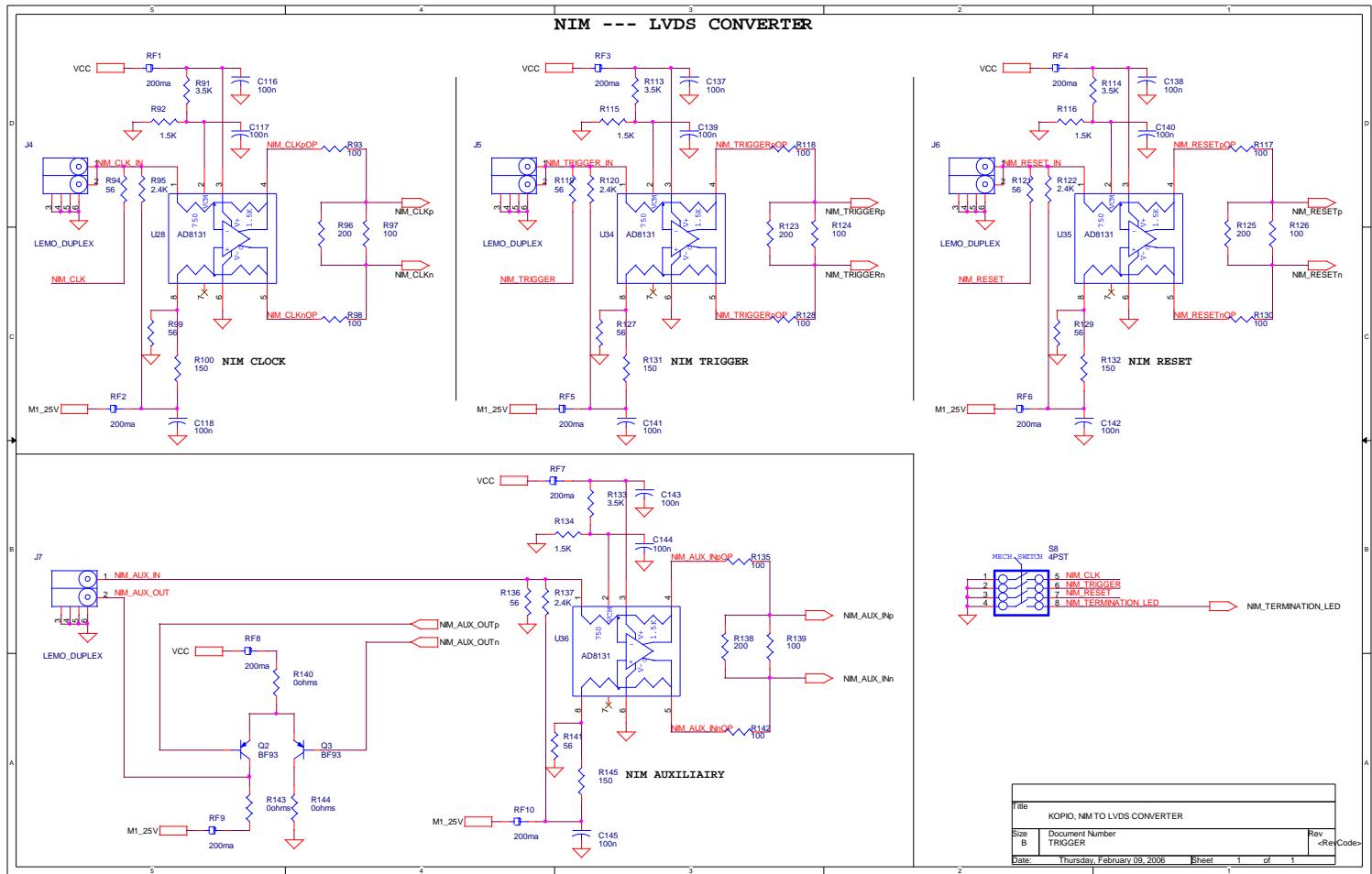
OUTPUTS DIFFÉRENTIELS

INP[24..11]	INP[24..1]
INP[24..11]	INP[24..1]
INP[48..25]	INP[48..25]
INP[48..25]	INP[48..25]



<OrgName>		
<OrgAddr1>		
<OrgAddr2>		
title		
<Title>		
Size	Document Number	Rev
B	<Doc>	<RevCode>
Date: Wednesday, February 08, 2006 Sheet 1 of 1		

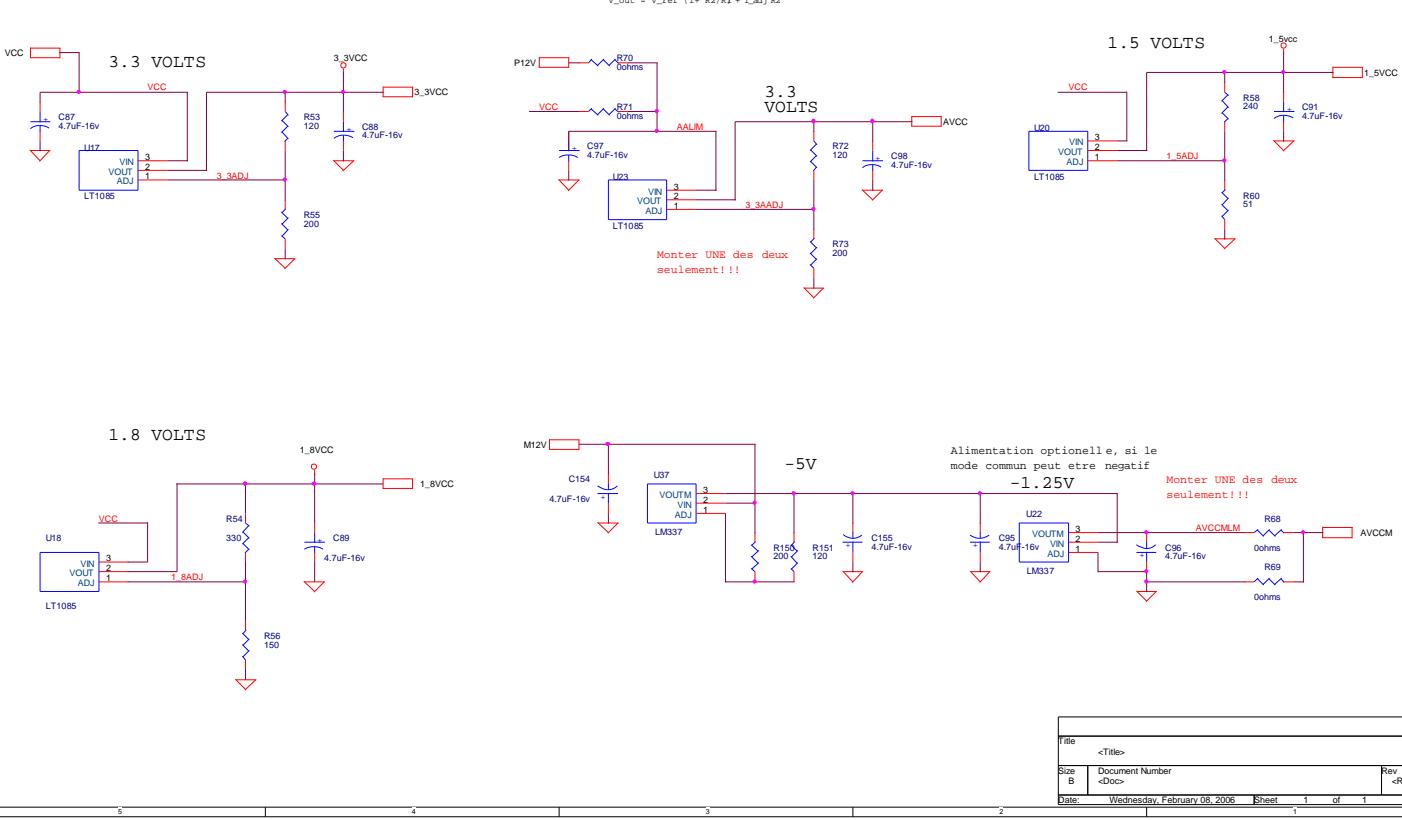
NIM --- LVDS CONVERTER

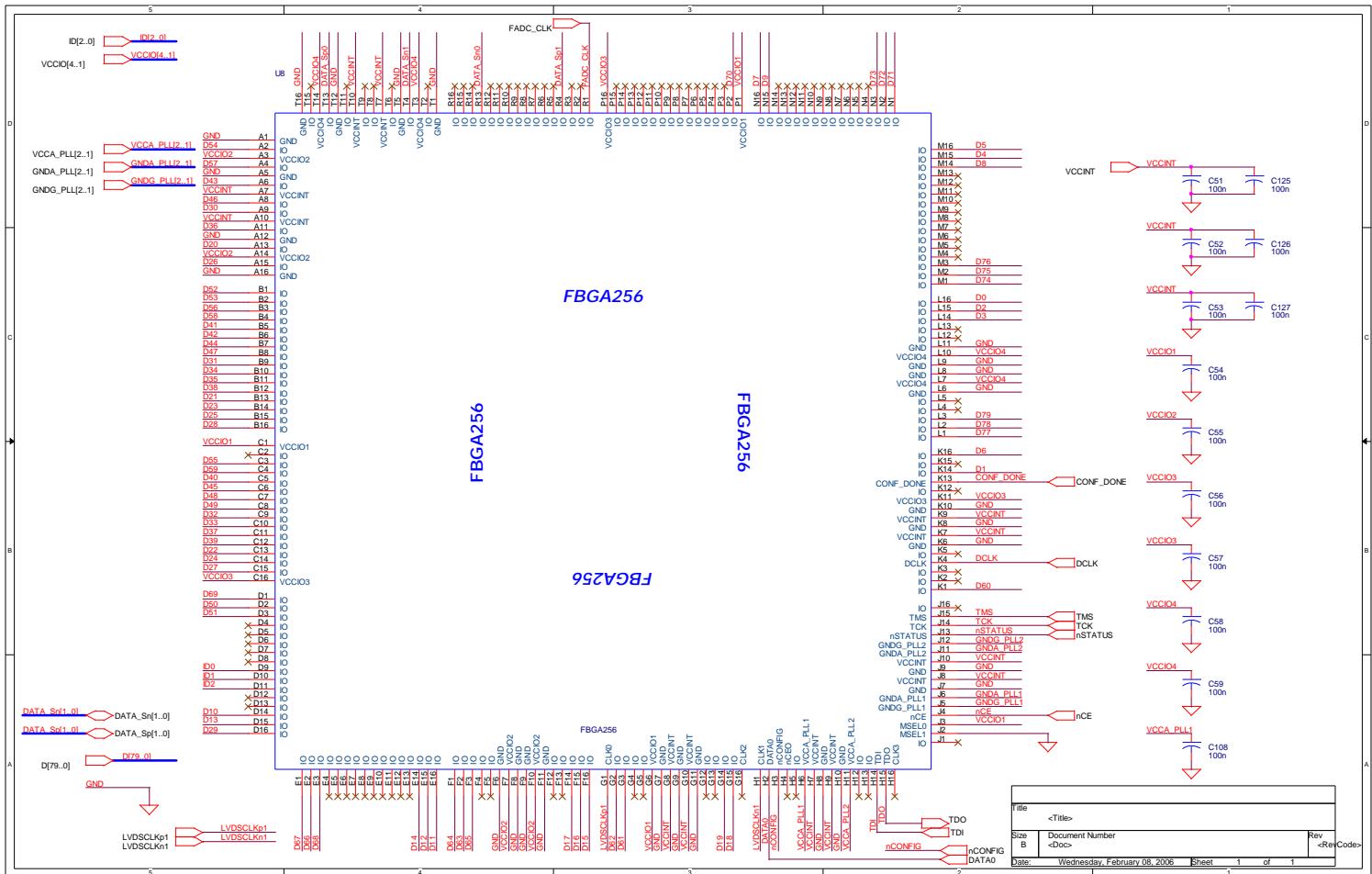


Title		KOPIO, NIM TO LVDS CONVERTER
Size	Document Number	Rev
B	TRIGGER	<Re>

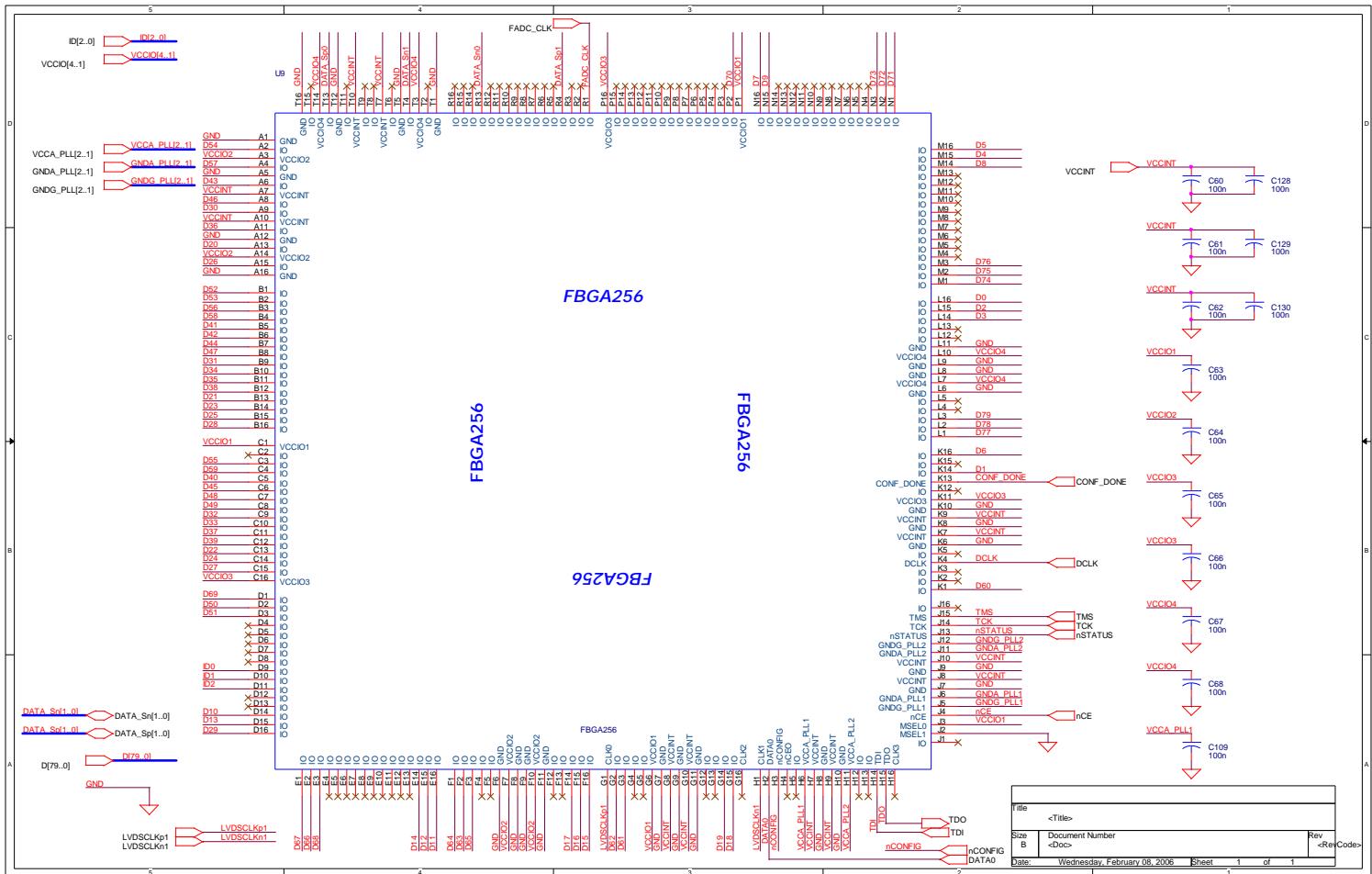
Date: Thursday, February 09, 2006 Sheet 1 of 1

POWER REGULATORS

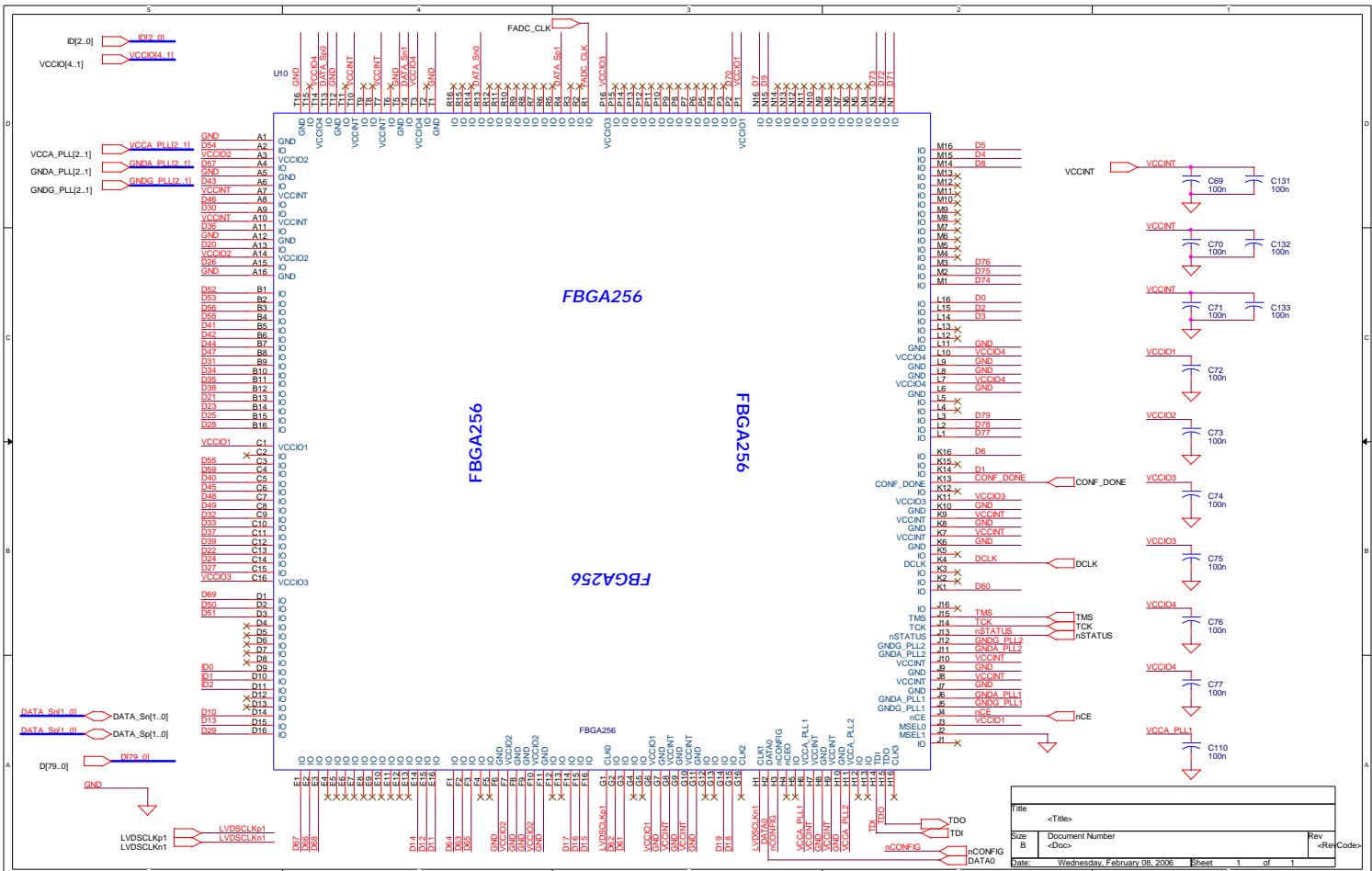




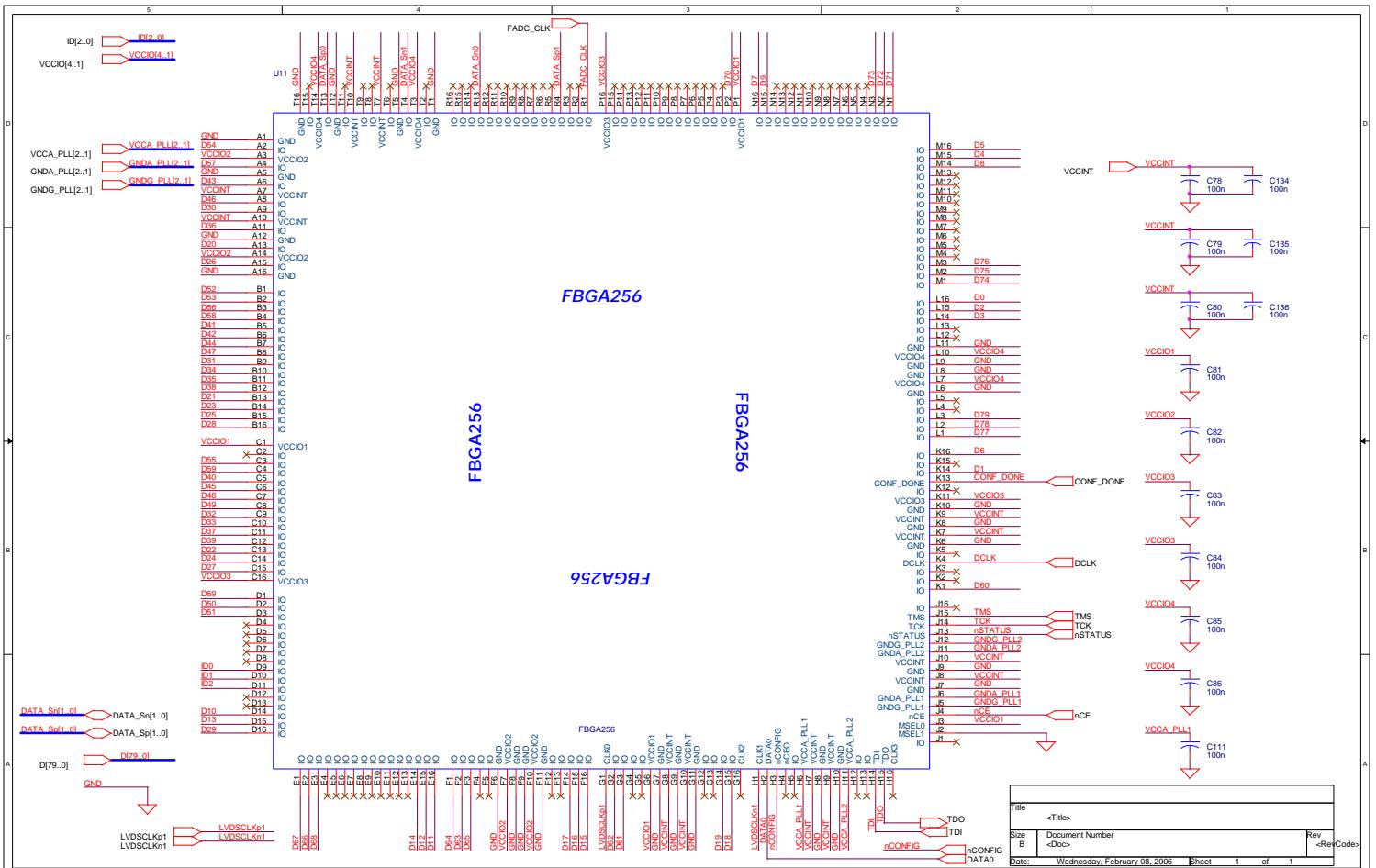
Title: <Title>
Size: B
Document Number: <Doc>
Date: Wednesday, February 08, 2006
Sheet: 1 of 1
Rev: <Rev>
Code: <Code>



Title: <Title>
Size: B
Document Number: <Doc>
Date: Wednesday, February 08, 2006
Rev: <Rev>
Code: <Code>



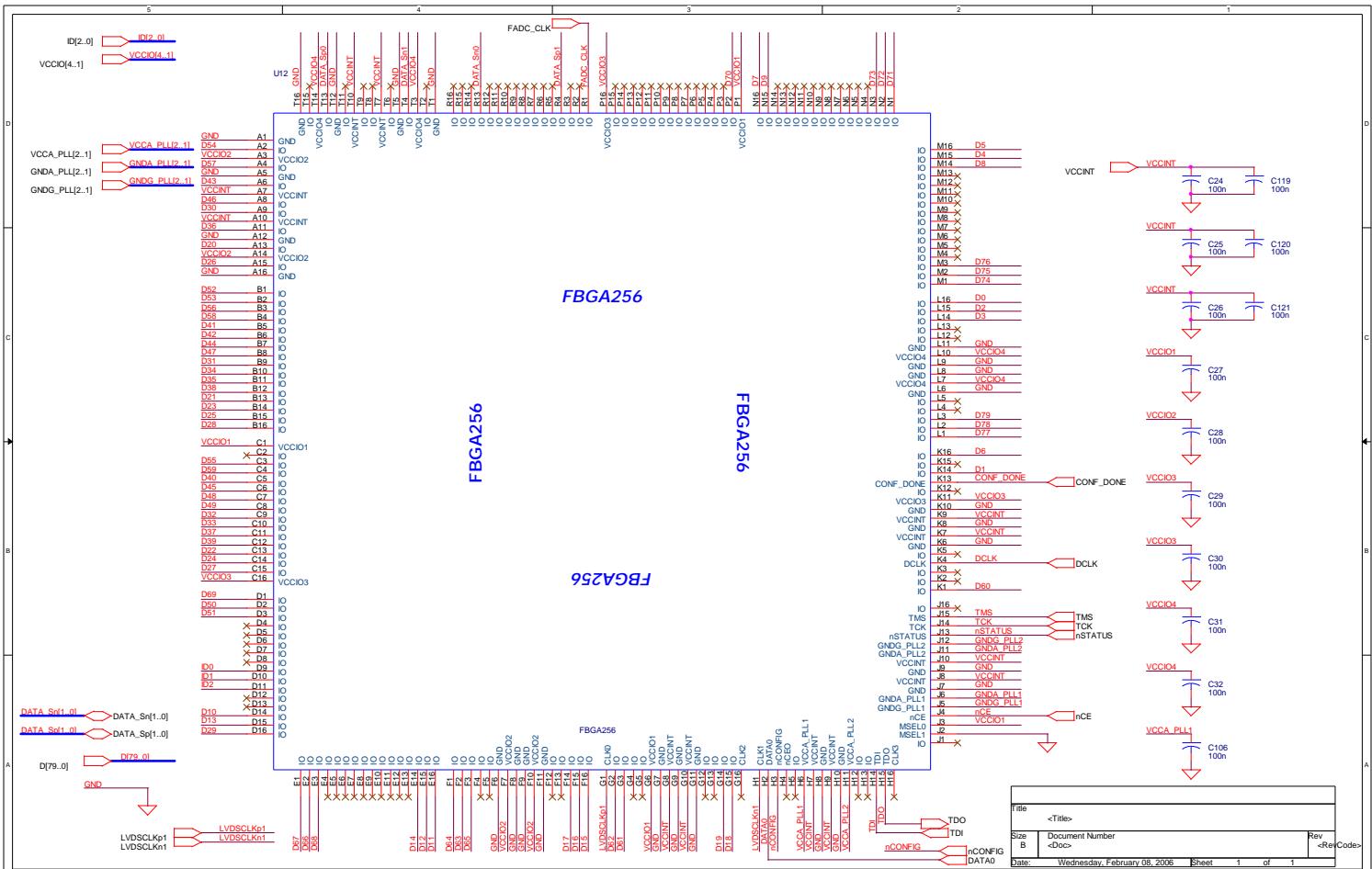
Title: <Title>
Size: B
Document Number: <Doc>
Date: Wednesday, February 08, 2006
Rev: <Rev>
Code: <Code>



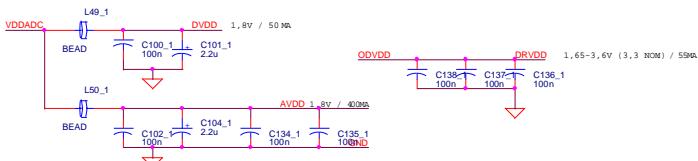
Title:	<Title>
Size:	B
Document Number:	<Doc>
Date:	Wednesday, February 08, 2006

Rev: <Rev>

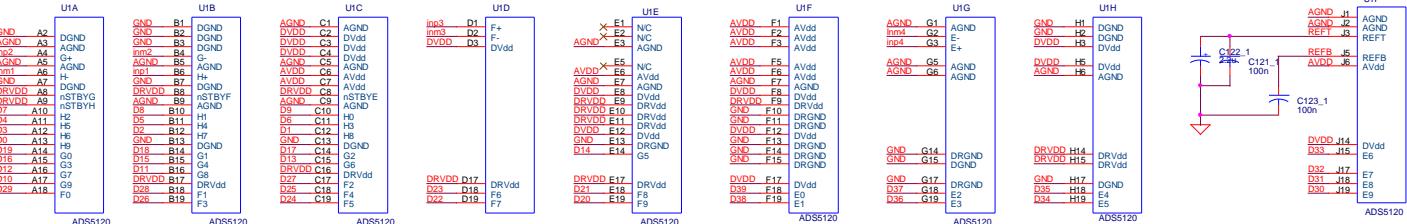
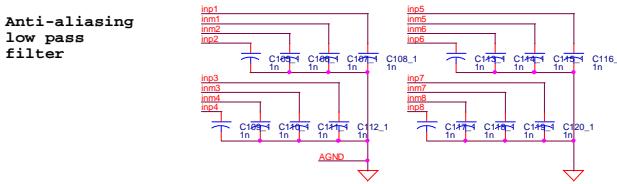
Code: <Code>



ADC 5120 (8)



Anti-aliasing
low pass
filter



From receivers
inp[8..1] ———> inp[8..1]
inn[8..1] ———> inn[8..1]

Power for output stage ODVDD ———> ODVDD
Power for FADC logic VDDADC ———> VDDADC

FADC_CLK ———> FADC_CLK

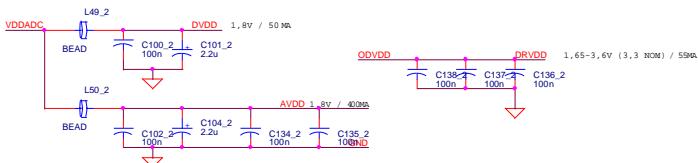
CML ———> CML

OUTPUT

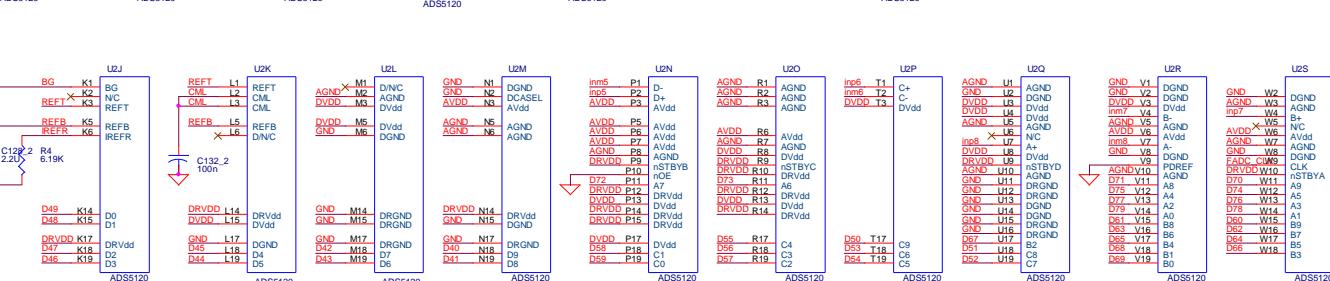
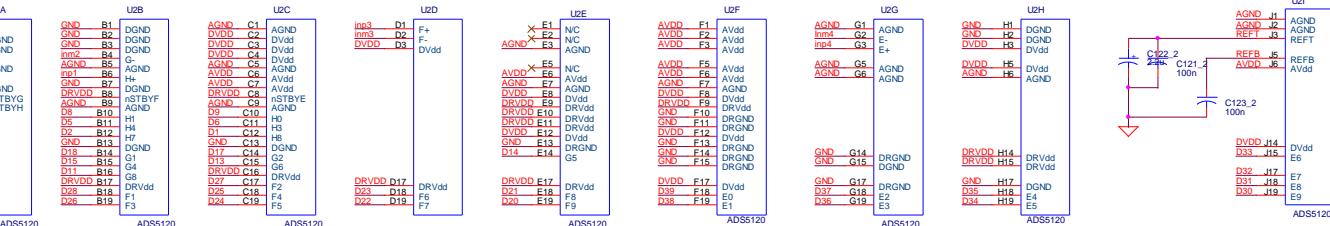
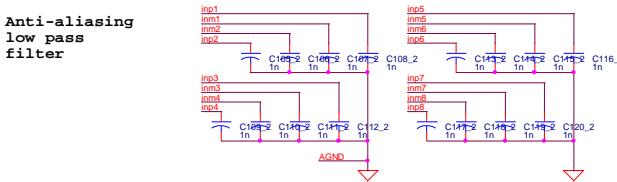
DR9..0

University of Montreal	J.P.Martin
	Groupe Technologique
	Title
	KOPIO_cfe FADC A to D
Size B	Document Number
	FADCAD
Date:	Wednesday, February 08, 2006
	Sheet 1 of 1
	Rev 0

ADC 5120 (8)



Anti-aliasing
low pass
filter



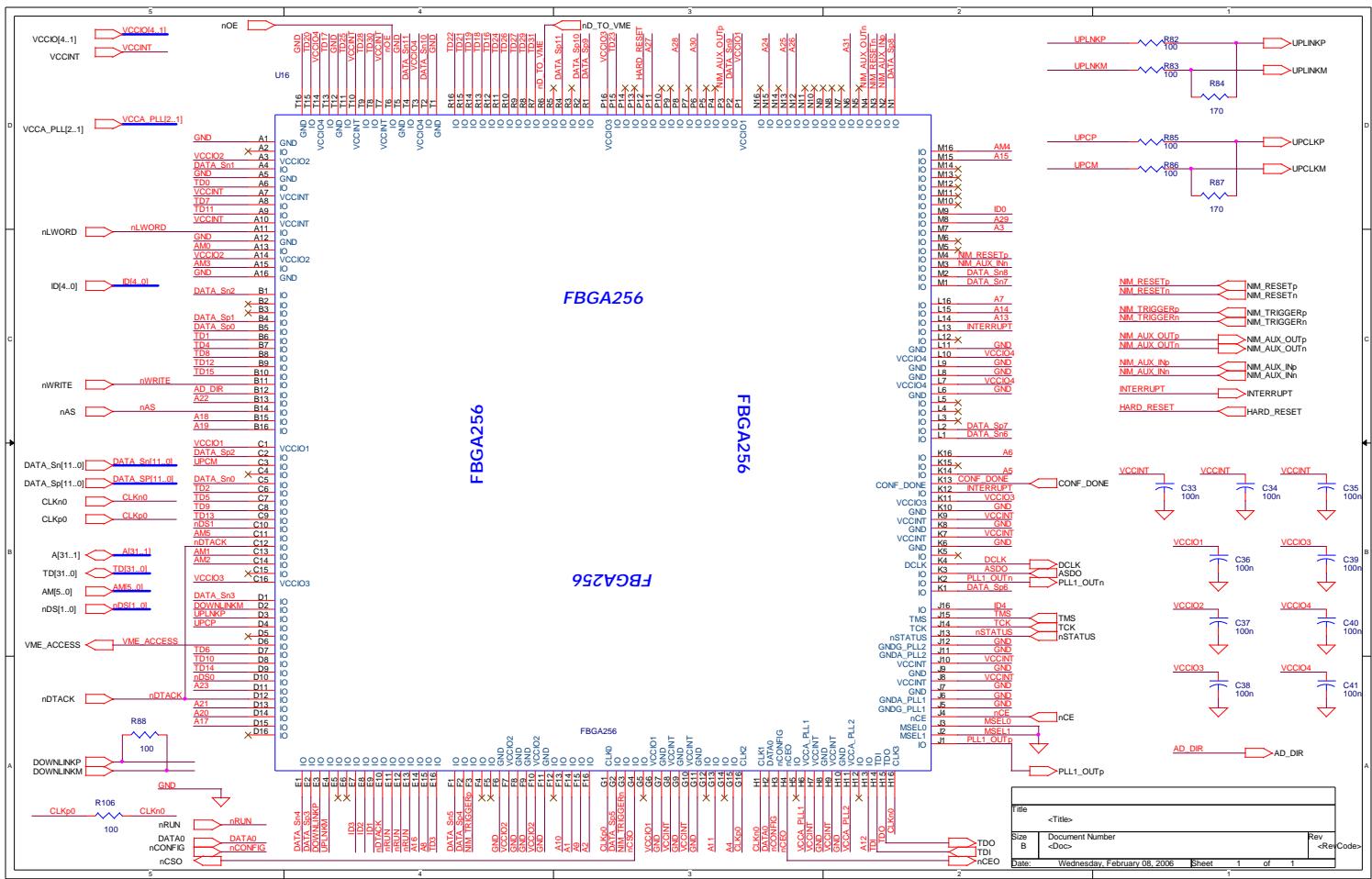
From receivers
inp[8..1] ———> inp[8..1]
inn[8..1] ———> inn[8..1]

Power for output stage ODVDD
Power for FADC logic VDDADC

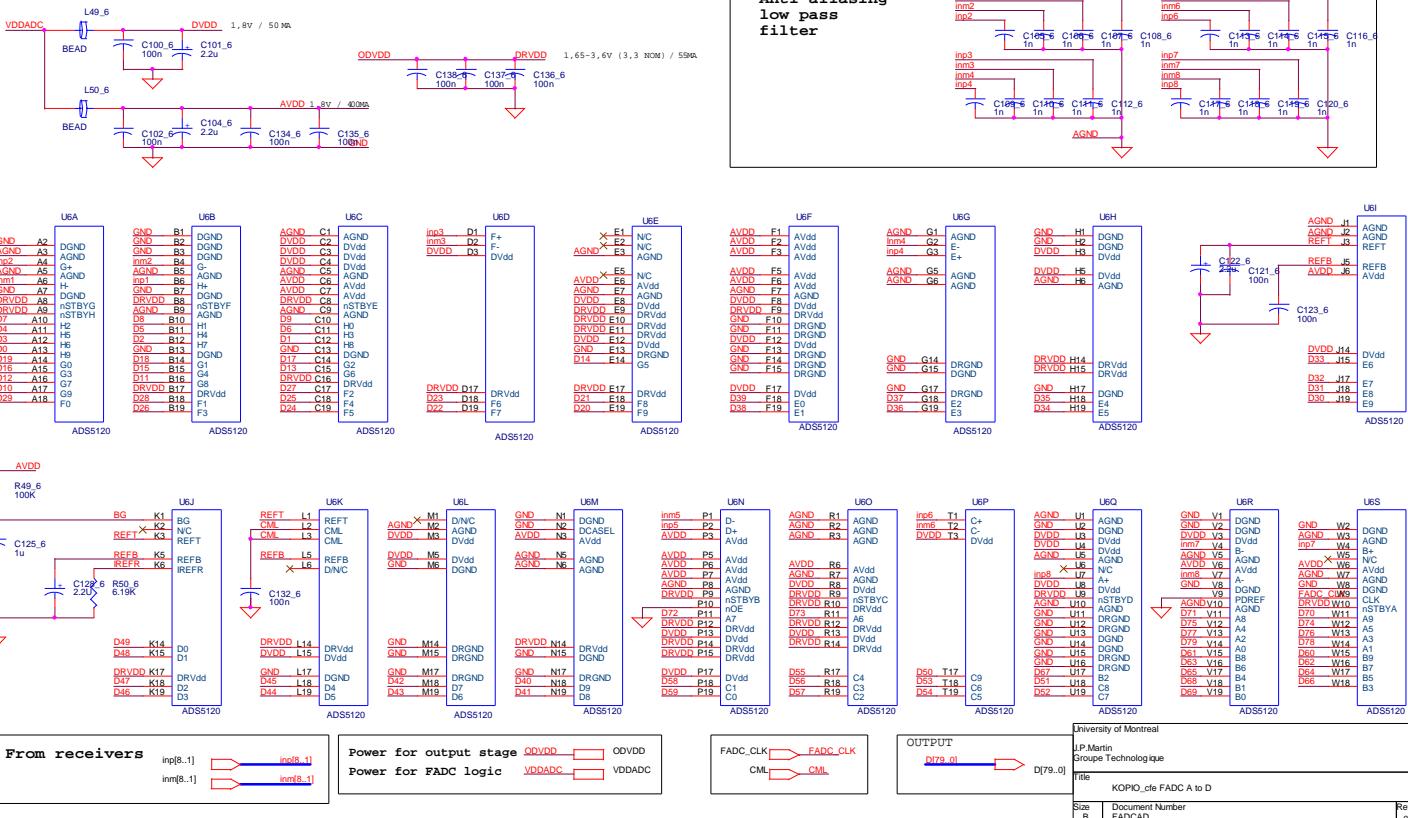
FADC_CLK
CML

OUTPUT
D79..0

University of Montreal
J.P.Martin
Groupe Technologique
Title: KOPIO_cfe FADC A to D
Size: B Document Number: FADCAD Rev: 0
Date: Wednesday, February 08, 2006 Sheet: 1 of 1



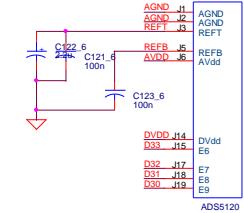
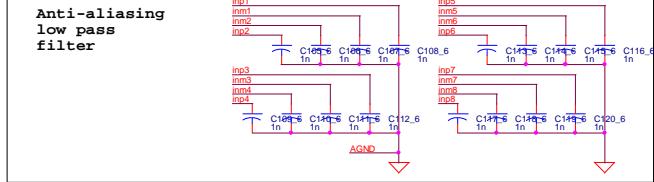
ADC 5120 (8)



From receivers

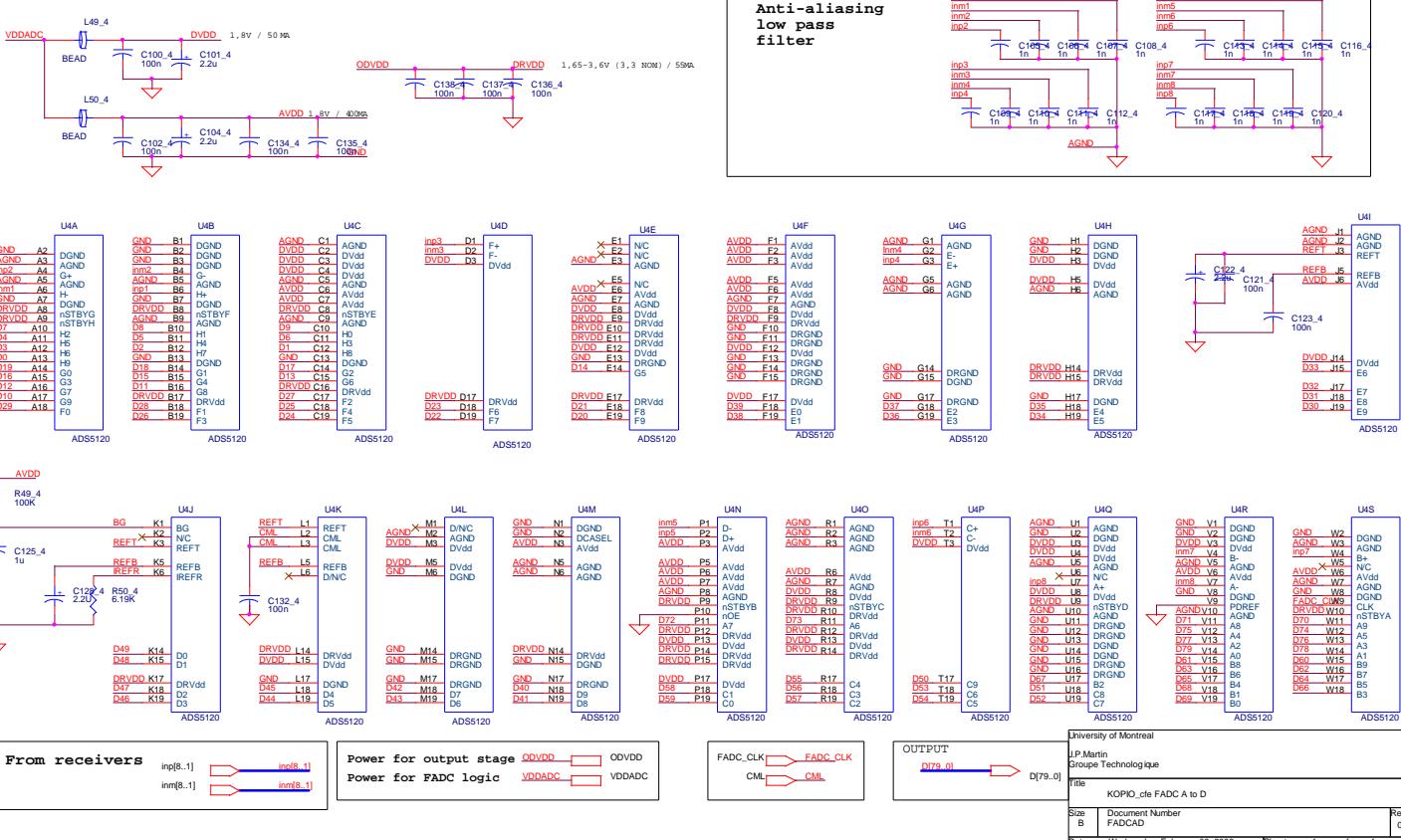
inp[8..1]	inp[8..1]
inn[8..1]	inn[8..1]

Power for output stage QDVDD
Power for FADC logic VDDVDD
 VDDADC



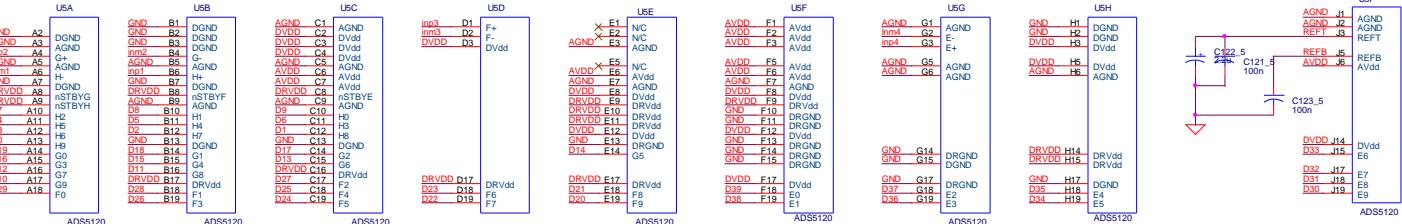
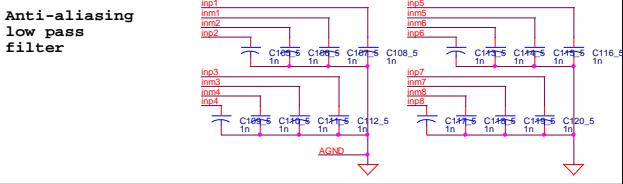
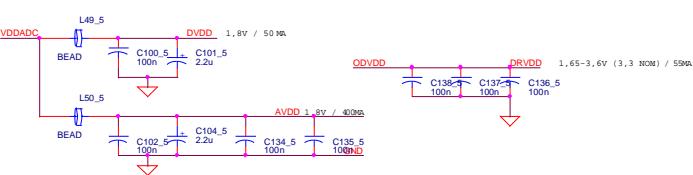
University of Montreal
 J.P.Martin
 Groupe Technologique
 Title
 KOPIO_cfe FADC A to D
 Size B
 Document Number FADCAD
 Date: Wednesday, February 08, 2006
 Sheet 1 of 1
 Rev 0

ADC 5120 (8)



University of Montreal
J.P.Martin
Groupe Technologique
Title: KOPIO_cfe FADC A to D
Size: B Document Number: FADCAD Rev: 0
Date: Wednesday, February 08, 2006 Sheet 1 of 1

ADC 5120 (8)



From receivers
inp[8..1] inm[8..1]

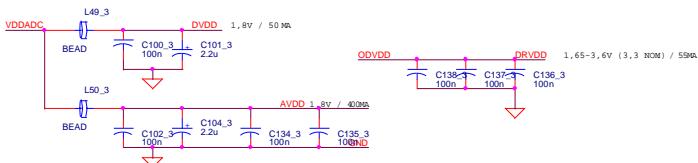
Power for output stage QDVDD
Power for FADC logic VDDADC

FADC_CLK
CML

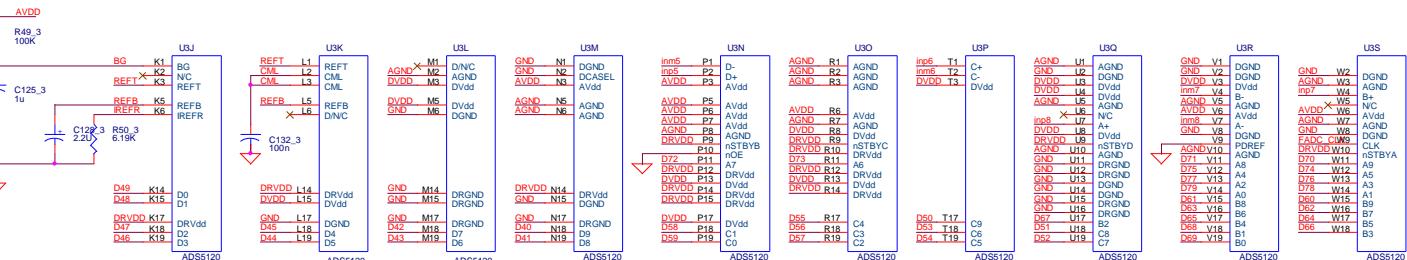
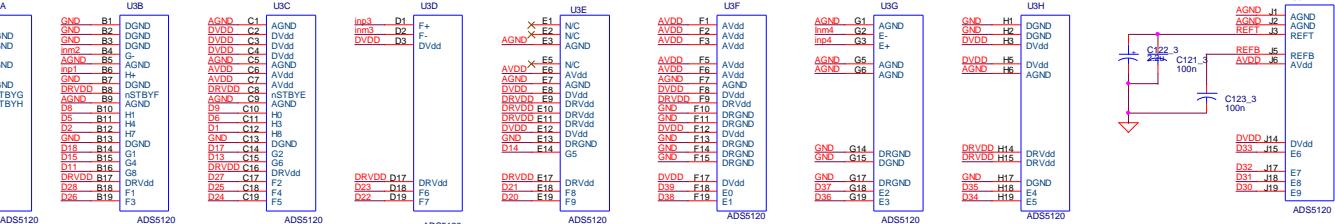
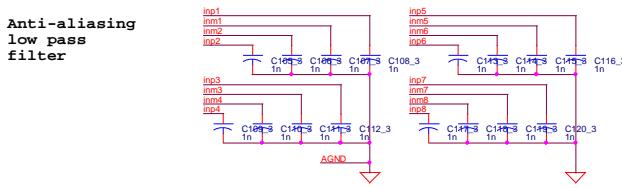
OUTPUT
D79..01

University of Montreal
J.P.Martin
Groupe Technologique
Title: KOPIO_cfe FADC A to D
Size: B Document Number: FADCAD Rev: 0
Date: Wednesday, February 08, 2006 Sheet: 1 of 1

ADC 5120 (8)



Anti-aliasing low pass filter



From receivers

inp[8..1]	inp[8..1]
inm[8..1]	inm[8..1]

Power for output stage QDVDD **Power for FADC logic** VDDADC

FADC_CLK

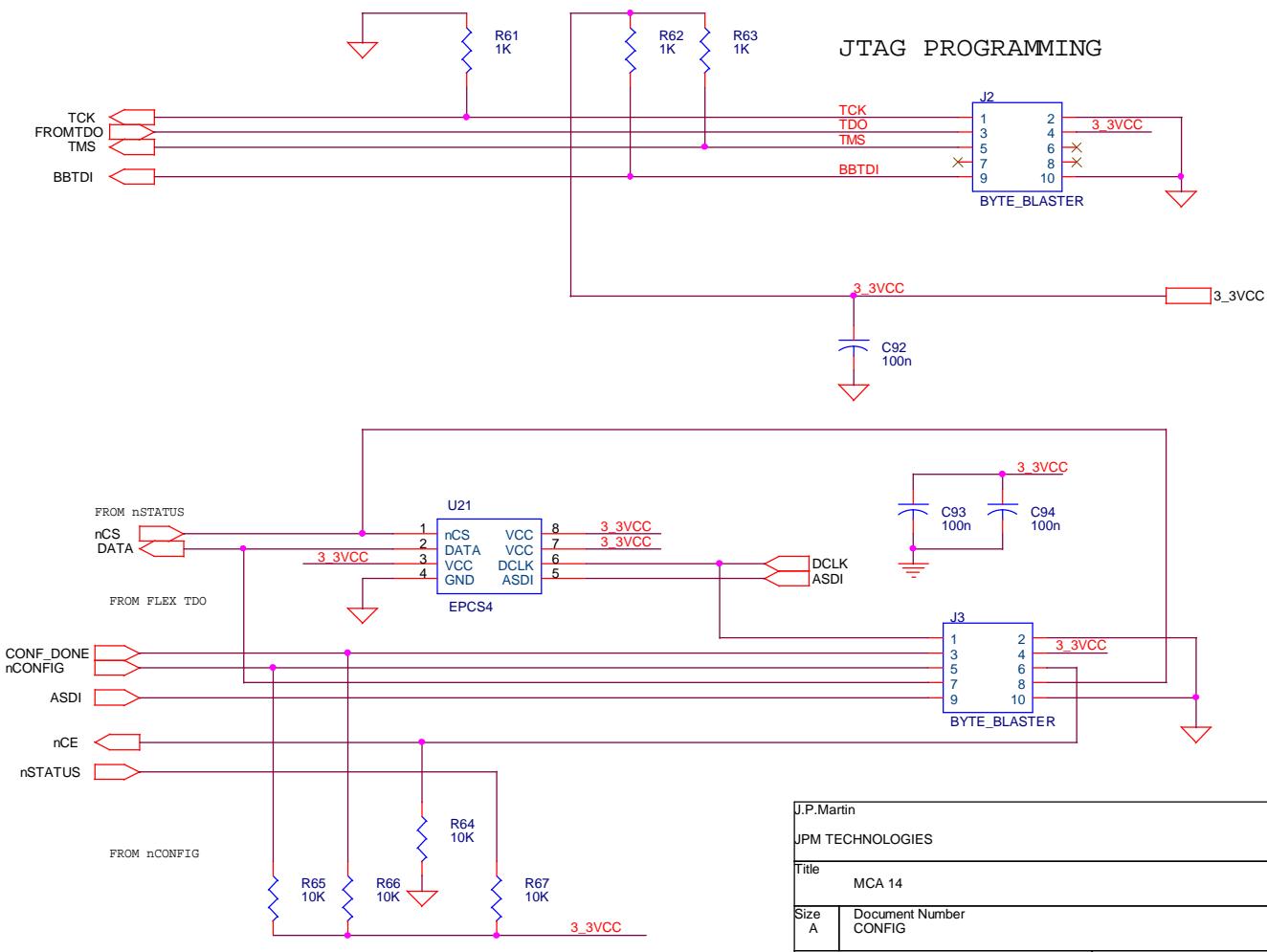
CML

OUTPUT

D79..0

University of Montreal
J.P.Martin
Groupe Technologique
Title: KOPIO_cfe FADC A to D
Size: B Document Number: FADCAD Rev: 0
Date: Wednesday, February 08, 2006 Sheet: 1 of 1

JTAG PROGRAMMING AND CYCLONE CONFIGURATION



J.P.Martin	
JPM TECHNOLOGIES	
Title	
MCA 14	
Size A	Document Number
CONFIG	
Date: Wednesday, February 08, 2006	Rev 0
Sheet 4	of 10

