

M21163

DEVICE OVERVIEW

3.2Gbps 32 Port Reconfigurable Non-Blocking Crosspoint Switch

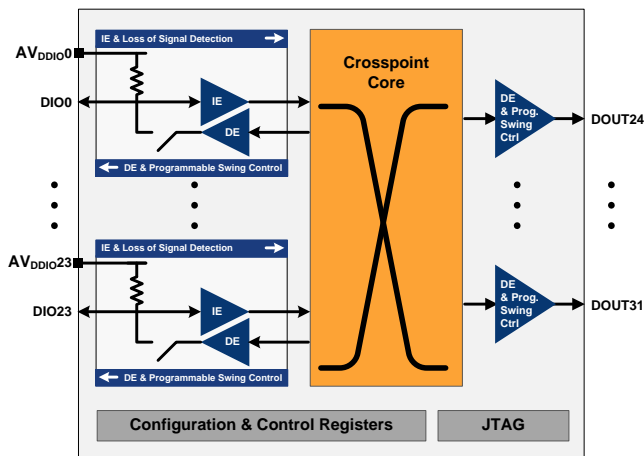
The M21163 is a very low power, reconfigurable, 32 port, non-blocking digital crosspoint switch. The device is optimized for power and performance for data frequencies of up to 3.2 Gbps, including Serial Digital Interface (SDI) video data rates.

The M21163 is designed to provide the designer with the utmost choice and flexibility. With 24 reconfigurable input/output ports and 8 dedicated output ports, it may be used to create any square and non-square matrix size, from 24x8, to 16x16, to 1x31 and every size in between.

The M21163 includes signal conditioning to compensate for losses accumulated across long board traces, making it ideal for high-speed backplane switching applications. Each input/output port features individually programmable trace equalization when configured as an input, and individually programmable de-emphasis and output swing, when configured as an output. The dedicated output ports have individually programmable de-emphasis and swing control.

For lowest power consumption and ease of heat dissipation management, the device may be powered from a single 1.2 V supply. For ease of design and when DC coupling to a voltage other than 1.2 V is desired, the high-speed input and output ports, as well as the digital interface, may be powered from a 1.2 V, 1.8 V, 2.5 V or 3.3 V supply. Furthermore, the input/output ports include on-chip 50 Ω termination and are electrically isolated from one another, allowing each to be powered from and terminated to a different voltage rail. This provides additional flexibility as each port on the device may be DC coupled to upstream and downstream devices with different voltage rails.

The M21163 is offered in a green and RoHS compliant 17 mm x 17 mm, 252-pin, thermally enhanced BGA package.



M21163 Block Diagram

> The M21163 is Ideal For

- Signal switching
- Fanout buffers
- Backplane equalizing and re-driving
- 3G/HD/SD-SDI switchers and routers

Features	Benefits
8 fixed outputs and 24 reconfigurable IOs	Customized square and non-square matrix size
Per port individually programmable input equalization and output de-emphasis	Compensate for signal losses across various trace lengths
Per port individually programmable output swing control	Optimized power consumption and performance for each application
Per port individual powerdown control	Optimized power consumption for variety of applications
Very low power operation (65 mW per channel @1.2V)	Ease of thermal management and reduced cost of operation
DC and AC coupling at the input and output with integrated level shifter	Design and layout flexibility
Integrated 50Ω input and output termination	Ease of design and layout and improved signal integrity
Loss of Signal detection at the input	Diagnostic and debug feature
Standard 2-wire and 4-wire serial digital interface	Flexible control and configuration
Industrial Operation Temperature range of -40°C to 85°C	Robust Operation under a wide range of conditions

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A		DI06N	DI06P	VSS	DI05N	DI05P	VSS	DI04N	DI04P	VSS	DI02N	DI02P	VSS	DI01N	DI01P	
B	DI09P	VSS	AVDDI06	AVDDI07	VSS	VSS	AVDDI05	AVDDI04	AVDDI03	AVDDI02	VSS	VSS	AVDDI00	AVDDI01	VSS	DOU230P
C	DI09N	AVDDI09	VSS	VSS	DI07N	DI07P	VSS	DI03N	DI03P	VSS	DI00N	DI00P	VSS	MF3	AVDD030L_31	DOU230N
D	VSS	AVDDI08	VSS	VSS	VSS	VSS	VSS	VSS	VSS	VSS	VSS	VSS	MF4	VSS	VSS	VSS
E	DI010P	VSS	DI08P	VSS	VSS	AVDD CORE	AVDD CORE	AVDD CORE	AVDD CORE	AVDD CORE	AVDD CORE	MF5	MF1	DOU231P	AVDD030L_31	DOU229P
F	DI010N	VSS	DI08N	VSS	AVDD CORE	VSS	VSS	VSS	VSS	VSS	VSS	AVDD CORE	VSS	DOU231N	VSS	DOU229N
G	VSS	AVDDI010	VSS	VSS	AVDD CORE	VSS	VSS	VSS	VSS	VSS	VSS	AVDD CORE	VSS	VSS	AVDD028L_29	AVDD028L_29
H	DI012P	AVDDI011	DI011P	VSS	AVDD CORE	VSS	VSS	VSS	VSS	VSS	VSS	DVDDI0	VSS	DOU227P	VSS	DOU228P
J	DI012N	AVDDI012	DI011N	VSS	AVDD CORE	VSS	VSS	VSS	VSS	VSS	VSS	DVDDI0	VSS	DOU227N	VSS	DOU228N
K	VSS	AVDDI013	VSS	VSS	AVDD CORE	VSS	VSS	VSS	VSS	VSS	VSS	AVDD CORE	VSS	VSS	AVDD026L_27	AVDD026L_27
L	DI013P	VSS	DI015P	VSS	AVDD CORE	VSS	VSS	VSS	VSS	VSS	VSS	AVDD CORE	VSS	DOU224P	VSS	DOU226P
M	DI013N	VSS	DI015N	VSS	VSS	AVDD CORE	AVDD CORE	AVDD CORE	AVDD CORE	AVDD CORE	AVDD CORE	MF2	MF0	DOU224N	AVDD024L_25	DOU226N
N	VSS	AVDDI015	VSS	VSS	VSS	VSS	VSS	VSS	VSS	VSS	VSS	VSS	MF6	VSS	VSS	VSS
P	DI014P	AVDDI014	VSS	VSS	DI016N	DI016P	VSS	DI019N	DI019P	VSS	DI023N	DI023P	VSS	MF7	AVDD024L_25	DOU225P
R	DI014N	VSS	AVDDI017	AVDDI016	VSS	VSS	AVDDI018	AVDDI019	AVDDI020	AVDDI021	VSS	VSS	AVDDI023	AVDDI022	VSS	DOU225N
T		DI017N	DI017P	VSS	DI018N	DI018P	VSS	DI020N	DI020P	VSS	DI021N	DI021P	VSS	DI022N	DI022P	

M21163 Pinout

Package (RoHS Compliant)

17mmx17mm 252-pin BGA Package

For more product information, please visit www.mindspeed.com



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