ANALOG DEVICES

AN-331
APPLICATION NOTE

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Changing Your VGA Design from a 171/176 to an ADV471

by Bill Slattery

An ADV471 can be used in VGA* type graphic systems to replace the 171 or the 176. If the designer does not want to use the additional functions of the ADV471, it is quite simple to have these functions disabled. The diagrams below illustrate just this. Figure 1 shows the circuit connection diagram for a 171/176. Figure 2 is the connection diagram for an ADV471 in an application that was designed around a 171/176. It is an ADV471 functioning as a 171/176.

The additional pins of the ADV471 inputs (OL0–OL3) are connected as shown in Figure 2. The overlay inputs (OL0–OL3) are tied to ground as well as control inputs (RS2, SETUP and $\overline{SYNC}$). OPA is left floating while the pin V_{REF} is connected through a 0.1μF ceramic capacitor to V_{AA}. The additional V_{AA} pins are connected to the analog power supply while all GND pins are connected to the ground plane. Pins 1 and 2 (NC) are no connects.

All other external components and connections remain unchanged, including the RGB source terminations. If the 171/176 has 75Ω termination resistors, likewise the ADV471 should have 75Ω resistors. If the 171/176 uses 150Ω termination resistors (as is the case in the IBM PS/2*), the ADV471 should also be terminated using 150Ω resistors.

*IBM PS/2 and VGA are registered trademarks of International Business Machines Corp.

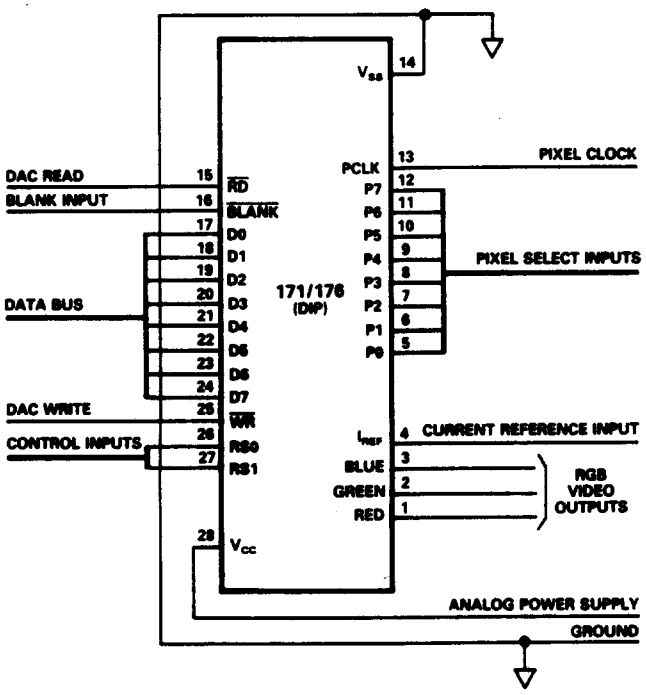

Figure 1. VGA Connection Diagram for 171/176

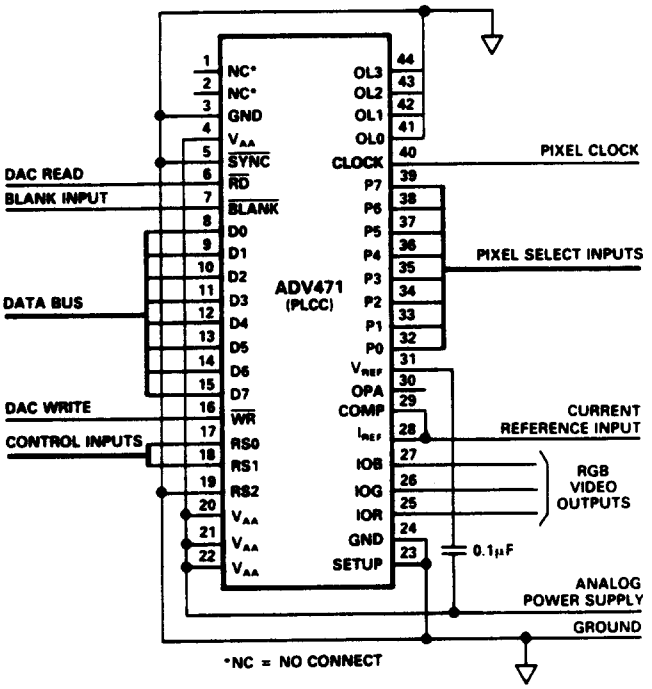

Figure 2. VGA Connection Diagram with the ADV471 Replacing the 171/176