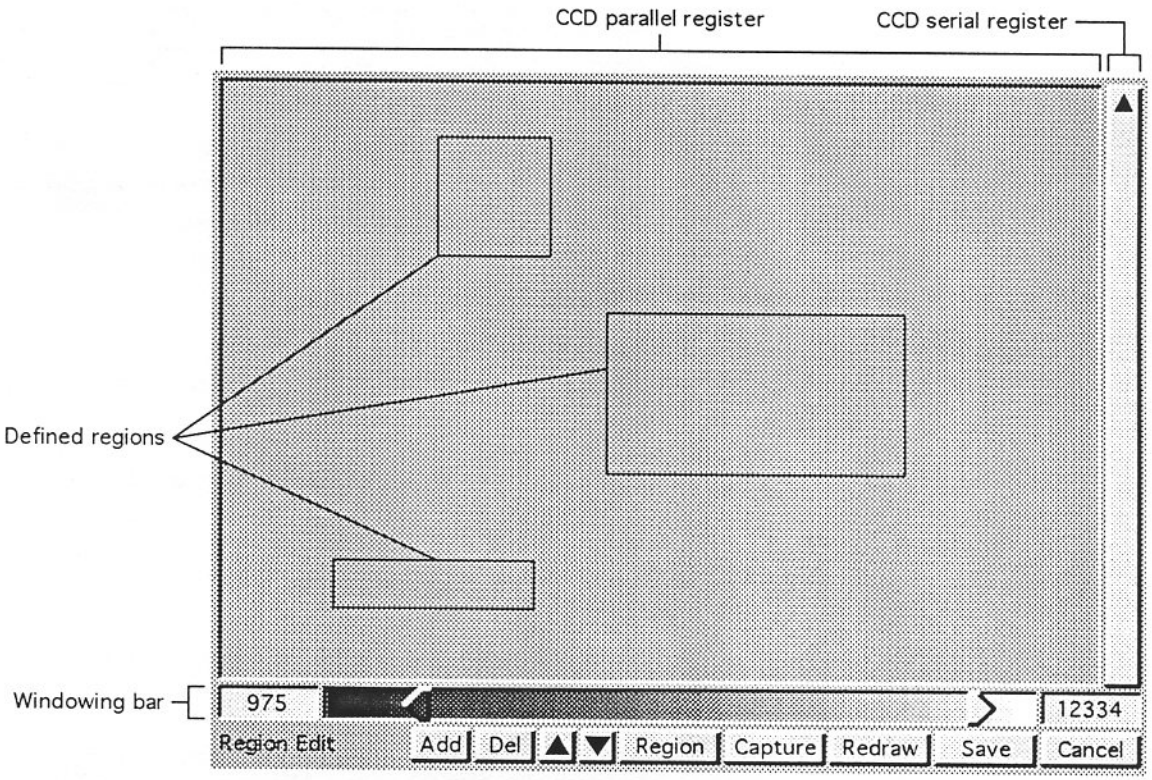
Defining Regions

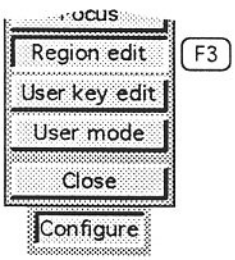
Each image acquired with Image200 includes one, two, three, or four independent regions. These regions must be defined before you can acquire images.

Regions and their attributes are defined in the Region Edit screen, which is similar to the Focus screen.



The region definition created in the Region Edit screen is saved in your Image200 configuration file. Whenever you choose a command from the Acquire menu, the region definition is read from the file and sent to the AT200 Camera Controller. There, it is used to control the readout of data from the CCD. By the time the acquired image is shown, the pixel data have been reorganized to match the regions defined.

To switch to the Region Edit screen, choose **Region edit** from the Configure menu, or press function key F3.



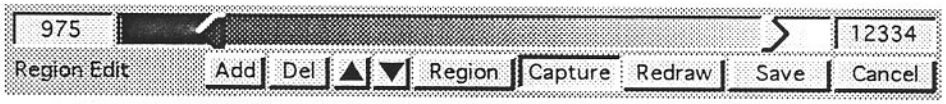
The Main screen is replaced by the Region Edit screen.

Similarities and Differences

Much of what you know about the Focus screen also applies to the Region Edit screen. Instead of repeating that discussion, this section summarizes the similarities and differences. The next section, *Region Attributes*, details the changes to the region definition.

Acquiring a Sample Image

You can define regions using the blank display, or click **Capture**



to acquire a sample image from the CCD. If **Exposure time verification** is on, you get a chance to confirm the exposure time or enter a new one. As in Focus, the new exposure time becomes the default time.

Capture always acquires a full image; binning is not an option. The minimum system requirements listed in the chapter *Installing Image200* will allow you to acquire a full image.

As in Focus, the sample image is stored only in a temporary buffer.

Adjusting Contrast

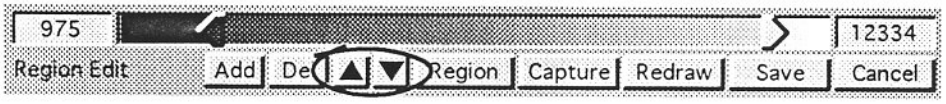
The Windowing bar works exactly the same as in the Focus screen. It adjusts the windowing of the sample image only; there are no focusing images.

Regions

Most of the differences between Focus and Region Edit are in the region attributes, discussed in the next section. There are a few differences in the region-definition interface.

As in Focus, regions are defined by dragging with the mouse. The **Add** and **Del** (delete) buttons are on the screen itself, not in a menu.

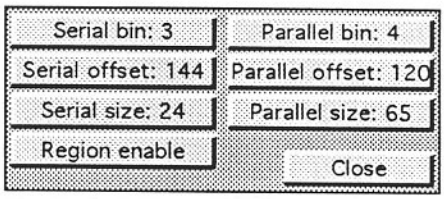
A pair of arrow buttons allows you to scroll up and down through the defined regions. The up and down arrow keys are the keyboard equivalents.



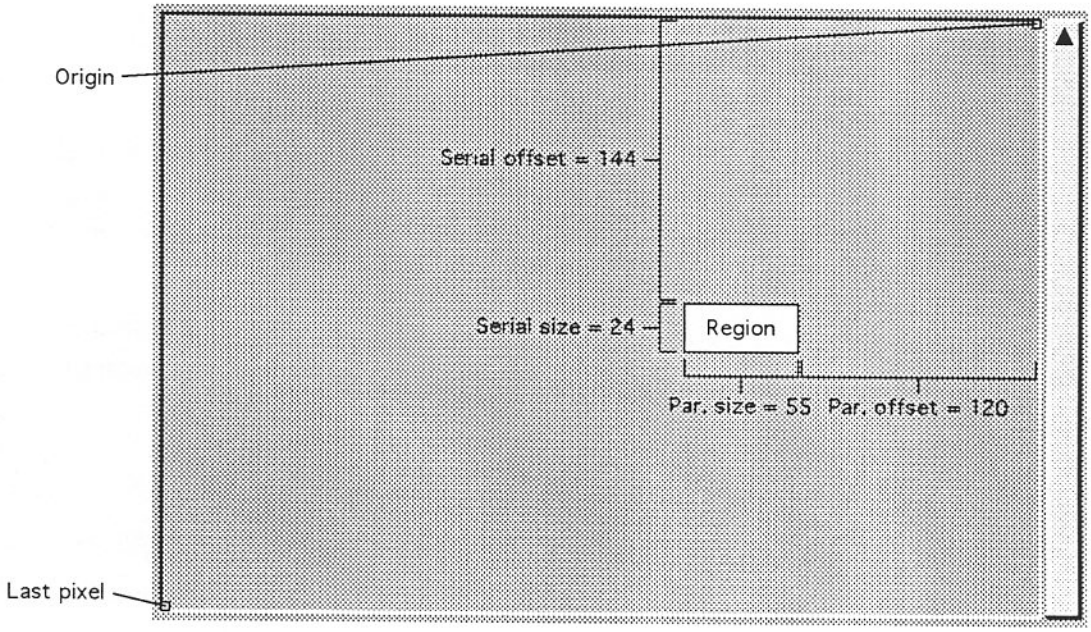
The current region is shown in red and the other active regions are shown in blue. When you add a region to the definition, it becomes the current region.

Region Attributes

Many attributes of the current region can be precisely adjusted. To see the region attributes, click **Region** to bring up the Region dialog box.



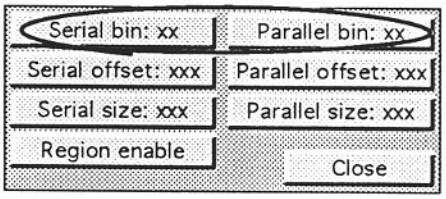
As the dialog box shows, regions in Region Edit have precise quantitative definitions. These are specified in terms of CCD dimensions.



The maximum dimensions are determined by the size of the CCD. The pixel nearest the output amplifier is the origin.

Binning

Binning factors determine how region data are treated on the CCD before they are digitized. The **Serial bin** and **Parallel bin** buttons



let you independently set serial and parallel binning factors for the current region. When you click either button, an entry box appears so you can change the binning factor.

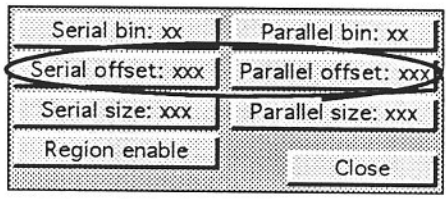
The binning must evenly divide the region size. If it does not, data from the "remainder" pixels—those farthest from the origin—will not be acquired.

During readout, all regions on the CCD will be shifted towards the serial register at the same time. Thus, if two regions are defined next to each other in the serial direction on the CCD, they will enter the serial register together. Their *parallel* binning factors must match, and their parallel offset must be such that the same parallel shifts can be used to bin both regions. If the binning factors do not match, Image200 displays an error message. For a detailed explanation of binning, see the *AT200 CCD Camera System Hardware Reference Manual.*

The default values for new regions are binning factors of 1.

Offset

The region's position is specified by the distance from the CCD origin to the nearest corner of the region. The **Serial offset** and **Parallel offset** buttons

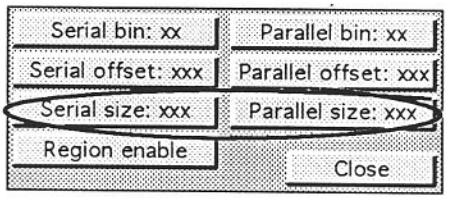


allow you to precisely adjust both serial and parallel offsets. When you click either button, an entry box appears so you can change the offset.

The values for a new region are determined by the region originally drawn with the mouse.

Size

The current region's dimensions are specified in actual CCD pixels, before binning factors are taken into account. The **Serial size** and **Parallel size** buttons



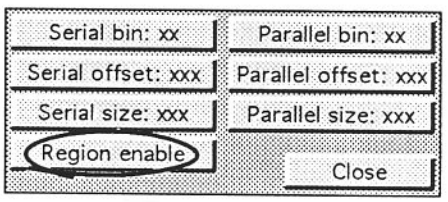
allow you to precisely adjust the serial and parallel size. When you click either button, an entry box appears so you can change the size.

The values for a new region are determined by the region originally drawn with the mouse.

Region Enable

The region definition can contain up to 16 regions, but you can acquire only four regions in any image. To preserve the unused regions, they may be disabled. A disabled region is not shown in the Region Edit display area, but the region remains defined and can be edited in the Region dialog box.

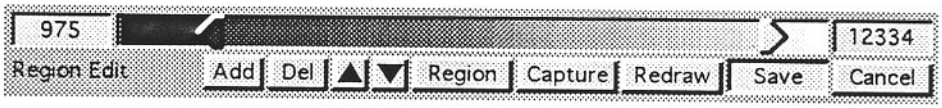
The **Region enable** button enables and disables the current region.



New regions are enabled by default.

Save the Configuration

When you have defined and enabled the regions you need, click the **Save** button



to save the region definition in your Image200 configuration file and return to the Main screen.

To leave the Region Edit screen without saving, click **Cancel**. If you have made any changes since you entered the screen, Image200 will ask whether you want to save your changes.

The settings on the Region Edit screen affect newly acquired images only. An image read from a disk file will be shown with the regions defined when the image was acquired.
